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AERIAL PHOTOGRAPHY

November 26, 1942

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WAR DEPARTMENT,
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AERIAL PHOTOGRAPHY

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CHAPTER 1

GENERAL

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1. **Purpose.**—The purpose of this manual is to provide a single text dealing with the problems, technique, and methods of training military personnel in the rudiments of aerial photography. The material is presented in the order best suited to a course of instruction, beginning with facts fundamental to the subject and followed by discussions of problems of technique and fact in their relative order of occurrence.

2. **General.**—*a.* Photography, when accomplished from aircraft in flight, is generally termed "aerial photography." While exposures may be made from aircraft with many kinds of cameras, special camera equipment is mandatory in view of the results desired. Aerial photography involves the making of both still and motion pictures. In this manual the process of making motion pictures from the air will be considered as aerial cinematography, and aerial photography will be considered as the processes involved in the making of still photographs.

b. Aerial, or aircraft, cameras are equipped with fast lenses of high optical qualities. Such cameras may be operated manually, semiautomatically, or automatically. Although automatic operation is not always used, it is invaluable to the pilot who, either by choice or by necessity, does not have the assistance of a cameraman.

3. **Instructions for use of equipment.**—A complete list of standard cameras and accessories used by the Army Air Forces may be found in Technical Order 00–1. The chart below gives a summary of Army Air Forces aerial cameras as of May 15, 1942. Technical Orders, series 10–10, describe in detail the installation, operation, and maintenance of the various types of cameras; therefore detailed discussions regarding these phases will not be dealt with in this manual. The pertinent Technical Order will be consulted before the operation of any equipment with which the cameraman is unfamiliar. In addition to camera instructions, Technical Orders include necessary instruction for the operation of all types of photographic equipment

SUMMARY OF ARMY AIR FORCES AERIAL CAMERAS AS OF MAY 15, 1942

Reconnaissance				Vertical or oblique spotting	Orientation	All purpose hand held	Bomb spotting	Topographic mapping	Aeronautical charting
Day	Night	Day							
		Low altitude	High altitude						
K–3B by K–17. K–7C by K–18. K–15 by K–15A. K–17 same as K–3B except 24 volts. K–18 by K–23. K–22. K–24. F–24 (British).	K–12 by K–23. K–19 by K–23. K–23. F–24.	K–25 (elec. K–24). Change order on K–20 pending availability of K–24.	K–15A by K–22.	K–10 by K–20. K–16.	K–21. K–24. F–24.	K–20.	K–24. L–2A.	T–3A.	K–17B. This replaces K–17 with 6″ cone.

NOTE.—The word "by" between two numbers indicates camera of that type bearing the first number is being replaced by a camera of the type bearing the second number. For example, K–3B by K–17 means that camera of type K–3B is being replaced by camera of type K–17.

and accessories; consequently detailed instructions concerning such equipment will likewise be omitted from this manual.

4. Glossary of terms.—*a. Map.*—A map is a graphic horizontal projection of a portion of the earth's surface.

b. Map substitute.—A term used to designate a map which can be produced in a matter of hours. It may be a direct reproduction of wide coverage aerial photographs, singly or in mosaic form, or made from existing provisional maps.

c. Mosaic.—A mosaic is an assembly of two or more overlapping, vertical photographs.

d. Controlled mosaic.—A controlled mosaic is a mosaic assembled so as to conform to predetermined survey data.

e. Uncontrolled mosaic.—An uncontrolled mosaic is one which has been assembled without the aid of survey data. Prints of the assembly have been pieced together by means of matching the photographic detail.

f. Strip mosaic.—A strip mosaic, often called reconnaissance strip, is a mosaic composed of a single strip of photographs. It may be controlled or uncontrolled.

g. Vertical photograph.—A vertical photograph is one made from an aerial viewpoint with the camera axis perpendicular to the earth.

h. Oblique photograph.—An oblique photograph is one made from an aerial viewpoint with the camera deflected from the perpendicular.

NOTE.—Aerial photographs intended as verticals sometimes may technically be obliques. This is due to camera tilt or sharp changes of terrain. However, if the normal procedures of restitution can produce an evenly scaled print, they are generally called verticals.

(1) *High oblique.*—One which shows the horizon.

(2) *Low oblique.*—One which does not contain the horizon.

i. Pinpoint photographs.—When it is desirous to secure a picture of a small object or location on the ground, the procedure is called pinpointing, and the resulting photograph is called the pinpoint photograph. The actual pinpoint on the photograph is the specific photographic objective.

j. Stereo-pair.—A stereo-pair is two overlapping photographs, the overlap of which is suitable for stereoscopic study. Pinpointing is oftentimes accomplished by making two such photographs.

k. Stereo-triplet.—A stereo-triplet is three overlapping vertical photographs, so photographed as to afford a further and better stereoscopic study of the pinpoint by permitting such study from two different stereoscopic viewpoints.

5. Uses of aerial photography.—*a*. Aerial photography has two uses to the military: mapping and intelligence. A chapter of this manual is designated to each phase.

b. A new use for aerial photographs has recently been devised for the compilation of aeronautical charts. It is of value for the mapping of large unmapped areas on scales of 1:500,000 or smaller. A further discussion of its uses and application is contained in section III, chapter 3.

CHAPTER 2

MAPPING PHOTOGRAPHY

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SECTION I

PROBLEMS OF THE CAMERAMAN

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6. General.—*a.* Mapping photography embraces both vertical and oblique camera work. Special cameras are used for the purpose. Mosaics are usually composed of prints from negative vertical photographs which have been made with single lens cameras. Oblique mapping cameras are in reality two or more cameras which work in unison. They make both vertical and oblique exposures. Their principle and application is taken up in section III, chapter 3.

b. In mosaic work with single lens cameras, any deviation of the camera from the vertical position increases the problems of the map maker. Scale variations are always present in any photograph because of the varying distances of the subject from the camera lens. Should the camera be tilted from the vertical, or should the terrain elevation sharply decrease or increase, the scale of the resulting photograph will vary. This variance can be partially corrected by some means of restitutional printing. The cameraman can materially aid the mosaic or map maker by maintaining his camera in a true vertical position at the moment of exposure; and the pilot by keeping his craft level and at a constant speed and altitude. Mapping photography requires very precise procedures and therefore demands the use of specially trained personnel, precision instruments, and high quality materials. When mosaics are laid with minimum control data or by the matched detail method, they may serve as a valuable topographic map. When accurately laid to considerable ground survey control, their material value as a map is greatly enhanced. Since topography and the works of man are constantly undergoing changes on the surface of the earth, it is often desirable that mosaic maps of a particular area be remade from time to time.

7. Scale of aerial photographs.—*a*. The scale of a map or aerial photograph is the ratio existing between a distance on the map or photograph and the corresponding distance on the ground. The scale of the aerial photograph is determined by two factors: the focal length of the lens used, and the altitude above the terrain at which the exposure was made. The scale is the ratio between the focal length and the altitude, and is expressed as $\frac{F}{A}$.

b. There are three methods of scale expression: the representative fraction, words and figures, and the graphic scale.

(1) Scale as a representative fraction is a fraction whose numerator indicates a distance on the photograph and whose denominator indicates a ground distance in the same unit of measurement. Thus a representative fraction of $\frac{1}{12000}$ means that one unit on the map represents 12,000 like units on the ground. In manuscript form, the representative fraction is usually written 1 : 12,000, instead of in its usual fractional form.

(2) Scale expressed as words and figures is often used instead of the representative fraction, especially in the case of large-scale maps. It is generally best to use the scale expression which is most applicable to the conditions of use. For example, a scale expressed as 6 inches equals 1 mile is easily understandable and very adaptable to measuring on a large-scale mosaic.

(3) A graphic scale is a drawing, usually in the form of a line or double line, so divided into parts or segments that each division represents a certain ground distance when measured on the map. If the graphic scale is properly placed on a map, its use is generally considered the most accurate method of measurement. All paper materials are subject to contraction and stretching due to atmospheric conditions. Therefore, if the graphic scale is drawn on the map, it also will be subject to contraction or stretching and will remain true to the scale of the map. It is known that many paper

materials contract or stretch to a greater extent in one direction than in another. To compensate for this and to add to the accuracy of the graphic scale, some maps contain two graphic scales at right angles to each other. Distances on such a map should therefore be measured by using the graphic scale which will most nearly parallel the direction of measurement.

8. Ground coverage per exposure.—From a study of figure 1, it can be seen that two similar triangles may be formed by drawing lines from the extremities of the ground covered to the extremities of the plate used. The ratio between the distances d and D represents the scale. Likewise, the ratio between the altitudes of the two similar triangles represents the scale. Therefore, the focal length of the lens used is to the altitude above the terrain as the distance on the plate is to the corresponding distance on the ground; hence the formula, $F:A::d:D$.

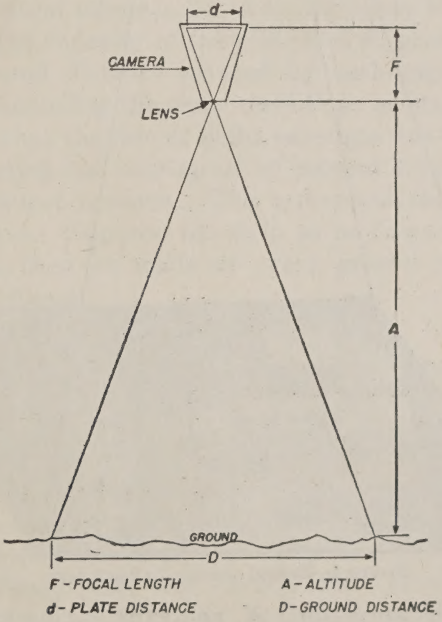

FIGURE 1.—Illustration $F : A :: d : D$.

In a problem of this type, when three factors are known, the fourth can always be found by solving the proportion (fig. 2). For example, when using a 12-inch lens at 11,000 feet with a 7- by 9-inch plate, the lateral and longitudinal coverage may be found as follows:

$$F:A::d:D$$

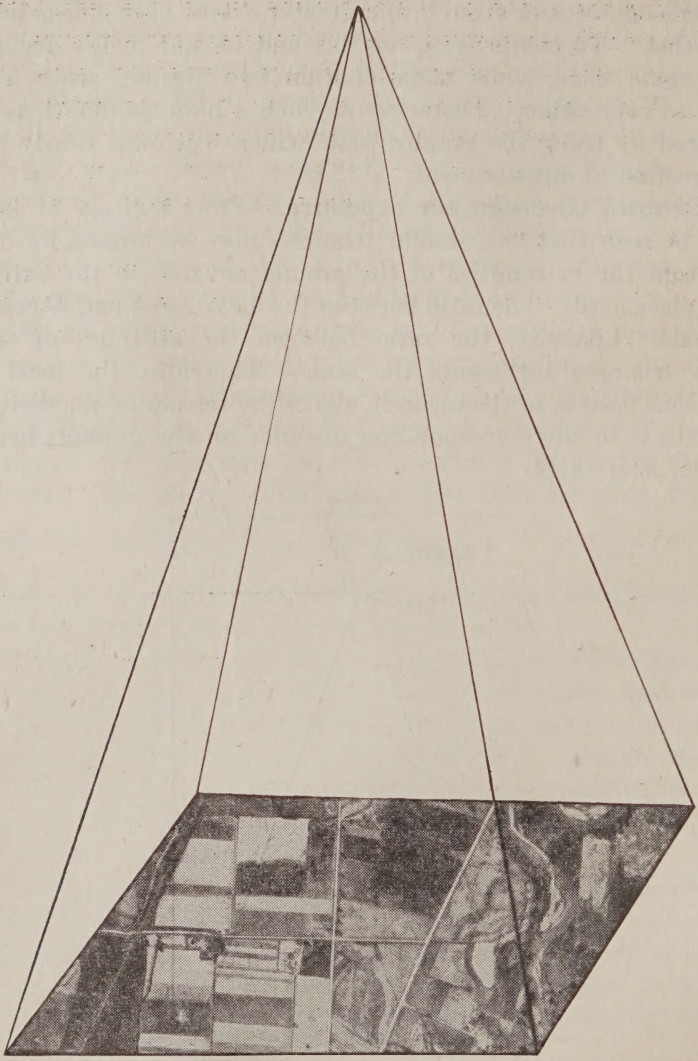

FIGURE 2.—Ground coverage, 7 x 9 inch plate.

Letting ground distance equal *X*, and substituting known values for the other terms,

$$12 \text{ inches} : 11{,}000 \text{ feet} :: 7 \text{ inches} : X$$

In any proportion, the product of the extremes is equal to the product of the means; therefore

$$12X = 77{,}000 \text{ feet}$$
$$X = 6416+ \text{ feet}$$

$\therefore$ the longitudinal coverage (7-inch side of the plate) $= 6416$ feet

Substituting the 9-inch plate size for the 7-inch, the result would be 8,250 feet, which represents the lateral coverage per exposure. Longitudinal and lateral coverage are usually referred to respectively as running and side coverage. The longitudinal coverage must be known in order that the number of strips necessary to complete the mission may be computed. Both factors must be considered when computing the total number of exposures necessary for a mosaic of more than two strips.

9. Number of exposures per strip.—The number of exposures required to photograph a strip depends upon the focal length of the lens used, the altitude at which the mission is flown, the measurement of the plate in line of flight, and the amount of overlap desired. In order to provide suitable stereoscopic coverage and for the purpose of radial line control, a 60 percent overlap of exposures in line of flight is generally considered the most desirable. Therefore, the plate coverage and ground advance between exposures is only 40 percent of the line of flight capacity of the plate and 40 percent of the actual longitudinal ground distance covered by each exposure. (100%—60%=40%.) Assuming the same conditions as stated in paragraph 8, it was found that the line of flight coverage was 6,416 feet on the ground. Deducting the overlap of 60 percent from this distance, a balance of 2,566 feet remains. This represents the ground advance between exposures. Suppose the strip to be flown is 15 miles long. Exposures must then be made at every ground advance of 2,566 feet. Solve as follows:

$$1 \text{ mile} = 5280 \text{ feet}$$

$$15 \text{ miles} = 15 \times 5280 \text{ feet, or } 79{,}200 \text{ feet}$$

$$2566 \text{ feet} = 1 \text{ exposure}$$

The number of exposures per strip is equal to the length of the strip divided by the ground advance per exposure; therefore, 79,200÷2566=30.8. It can be seen, then, that 30.8 exposures would be necessary to photograph a 15-mile strip at 11,000 feet above the terrain with a 7-inch plate and 12-inch lens. Since fractional parts of an exposure cannot be made the actual number of exposures necessary would be 31. It is good practice to add one exposure to the computed number as an insurance of full coverage of 60 percent. If this is not done the last print of the strip cannot receive proper overlap. The practical number of exposures in this case would therefore be 32.

10. Number of strips necessary to cover a specific area.—The number of strips required to photograph a certain area depends upon the scale of the photograph or lateral ground coverage, the lateral plate size, and the required overlap of adjacent strips. In paragraph 8 it was found that the lateral ground coverage was 8,250 feet with the 9-inch plate size. The amount of overlap between strips is a variable factor; sometimes a 10 percent overlap is all that is required, depending largely upon flying conditions and the manner in which the prints of a project are to be assembled. When a minimum of control is all that is available, the greater the overlap the better will be the map maker's chance of establishing supplementary control. For this reason, an overlap of 50 percent between strips is considered the most practical for the training of personnel, although in actual practice a side overlap of 25 percent, plus or minus 10 percent, is generally considered acceptable and is commonly used by mapping agencies. In the problem under consideration, 50 percent of 8,250 feet, or 4,125 feet, will, therefore, represent the ground distance of each strip with the overlap deducted. The total width of the area involved divided by this number will indicate the number of strips necessary to the actual coverage. However, it is customary to fly the two outer strips of a job exactly over the outer edges of the area in order to secure 50 percent overlap of the entire area to be photographed. This will make it necessary to fly an extra strip. The number of strips necessary to cover an area 10 miles wide may be arrived at as follows:

1 mile = 5,280 feet
10 miles = 10 × 5,280 feet, or 52,800 feet
4,125 feet = ground coverage per strip, less overlap
Number of strips = 52,800 ÷ 4,125, or 12.8 ∴ 12.8 strips

As in the previous instance where one exposure per strip was substituted for each fractional part thereof, one strip must be substituted for each fractional part of a strip. Adding the extra strip necessary to proper overlap, the total number of strips necessary is 14.

11. Number of exposures necessary to cover a specific area.—To determine the total number of exposures for a mosaic it is necessary to multiply the number of exposures per strip by the number of strips necessary to fly the job. Thus, in the problem under consideration—

1 strip = 32 exposures
14 strips = 14 × 32 exposures, or 448 exposures

This information is of vital importance to the photographer when computing how much film or the number of loaded magazines he must take on his mission.

12. Time interval between exposures.—*a.* There are two methods of determining how much time should elapse between exposures: mathematical computation, and viewing the passage of the image over the viewfinder ground glass. The latter method is the most practical as well as the most accurate, and is explained in paragraph 17.

b. When mathematically computing the exposure interval, the speed of the airplane and longitudinal ground coverage is taken into consideration. The ground coverage is dependent upon the altitude, focal length of lens used, and plate size. The focal length and plate size are "set" factors, but the altitude of the airplane above the terrain is not constant even when the most accurate altimeters are used. The general ground elevation above sea level may alter between exposures, with a resulting change of image scale and ground coverage. Since these variable factors exist, any mathematical computation possible is subject to error. The speed of the airplane within itself is also a variable factor which may increase or decrease in reference to the airplane speed over the terrain. Since the airplane must travel a given ground distance before the following exposure is made, any mathematical application may be very inaccurate. However, it is important that the photographer have at least a fair knowledge of what the interval is to be, prior to the take-off. Assume the same problem under consideration in paragraphs 9 and 10 and proceed as follows:

Longitudinal coverage (less overlap)=2,566 feet.

Speed of airplane (assumed)=100 miles per hour.

Problem: How long will it take an airplane flying at 100 miles per hour to travel 2,566 feet?

The answer to this problem will be the exposure interval.

At 100 mph an airplane will travel 100 × 5,280 feet, or 528,000 feet per hour.

Exposure interval must be computed in seconds of time, so consider 1 hour as 60 minutes × 60 seconds, or 3,600 seconds.

Then, the airplane travels 528,000 feet in 3,600 seconds.

If the airplane travels 528,000 feet in 3,600 seconds, in 1 second it will travel $\frac{1}{3600}$ of 528,000 feet, or $146\frac{24}{36}$ feet.

Assume 146.6 feet as the advance per second. Then

Longitudinal coverage or advance between exposures=2,566 feet.

Rate of advance=146.6 feet per second.

Exposure interval=2,566÷146.6, or 17+seconds.

∴ the exposure interval is 17 seconds.

The accuracy of the answer arrived at is dependent upon the relationship of air speed as compared to ground speed.

NOTE.—Any fractional part of 1 second must be dropped in order to insure full coverage. It cannot be used as a fractional part because of the impracticability of applying it to the interval. Should the next highest number of seconds be used, the percentage of overlap between exposures would decrease. The omission of the fractional part of the second may in some instances increase the number of necessary exposures per strip. In cases of extremely long strips, this increase may be more than one exposure.

13. Flight map.—*a.* After the number of strips is computed, a flight map should be prepared. A flight map is one on which lines are drawn to indicate the exact location of the proposed traverse of the airplane over the territory (fig. 3). These traverse lines are known as flight lines. The flight map serves as a guide for the pilot, but should be prepared by the photographer. The flight lines should be accurately spaced on the map. To determine the spacing between flight lines, the distance on the photograph covered by each exposure (deducting the percentage of overlap) or the scale of the photograph, and the scale of the map to be used as a flight map are taken into consideration.

b. There are two methods by which these facts are used to make a flight map and may be explained as follows:

(1) Suppose the lateral ground coverage with the overlap subtracted is 4,125 feet, the airplane is at an altitude of 11,000 feet above the terrain, and a 12-inch lens is used. First ascertain what distance 4,125 feet will represent on the photograph. The proportion $F : A :: d : D$ may be employed. It will indicate a plate or photograph distance of 4.5 inches, computed as follows:

$$F : A :: d : D$$

$$12 \text{ inches} : 11{,}000 \text{ feet} :: X : 4{,}125 \text{ feet}$$

The distance that 4.5 inches on the photograph represents on the ground is proportional to the distance between flight lines on the flight map. Any map distance is to a corresponding distance on the photograph as the scale of the map is to the scale of the photograph. In this proportion there are two unknowns, the scale of the photographs, and the map distance which represents the distance between flight lines. The scale of a photograph may always be represented by a fraction whose numerator is equal to the focal length of the lens used and whose denominator is equal to the altitude. In other words, the focal length divided by the altitude equals the scale; or, as gener-

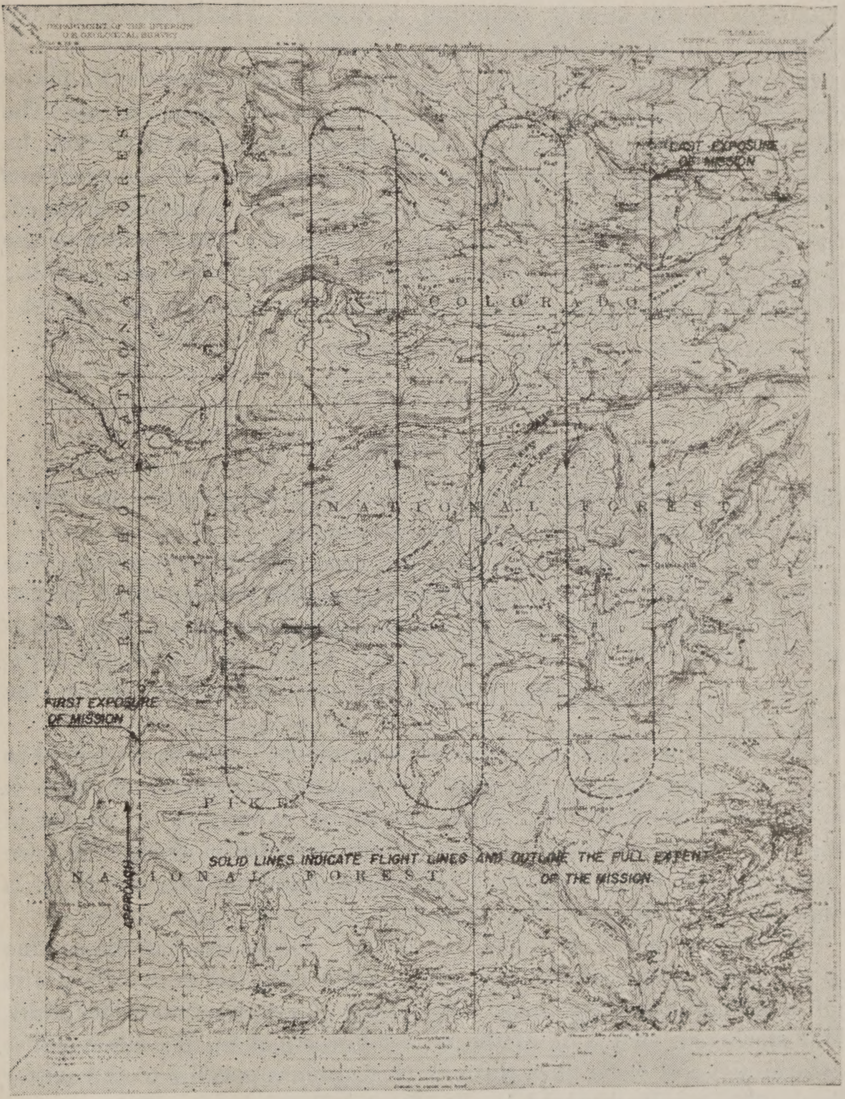
LAST EXPOSURE OF MISSION
COLORADO
ARAPAHO NATIONAL FOREST
NATIONAL FOREST
FIRST EXPOSURE OF MISSION
PIKE
APPROACH
SOLID LINES INDICATE FLIGHT LINES AND OUTLINE THE FULL EXTENT OF THE MISSION
NATIONAL FOREST

FIGURE 3.—Flight map.

ally expressed, $\frac{F}{A}$=scale. In this problem the lens is 12 inches in focal length and the altitude is 11,000 feet.

$$11{,}000 \text{ feet} = 132{,}000 \text{ inches}$$

Therefore

$$\frac{12\ (F)}{132{,}000\ (A)} = \frac{12}{132{,}000} \text{ or } \frac{1}{11{,}000}$$

The scale in this case is, therefore, 1:11,000. The proportion, map distance is to photo distance as map scale is to photo scale is now ready for solving. Proceed as follows: X (map distance) : photo distance :: map scale : photo scale; or, $X : 4.5$ inch :: $1/_{62,500} : 1/_{11,000}$. The proportion must be cleared of fractions before the problem can be solved. Applying the law of the reciprocal equation, if the positions of the denominators are interchanged and the numerators dropped, the value of the proportion remains unchanged. This results in the proportion, map distance : photo distance :: reciprocal of photo scale : reciprocal of map scale. Solve for X (the map distance) as follows:

$$X{:}4.5::11{,}000{:}62{,}500$$

$$62{,}500X=49{,}500$$

$$X=49{,}500\div62{,}500, \text{ or } .79$$

From the mathematics involved it has been shown that the flight lines should be .79 inch apart on the map.

(2) A so-called short step may be used without calculating the distance the lateral coverage represents on the photograph. Multiply the ground coverage by 12 to change feet to inches, and divide by the reciprocal of the scale of the flight map. $(4125\times12)\div 62{,}500=.79$. This system is much less involved and produces the same result.

(3) After the flight line interval is computed, the next step is to draw the flight lines on the map. If an uneven number of strips is to be flown, the center line should be drawn exactly in the center of the job. When an even number of strips is to be flown, the two center lines should be drawn so any point midway between them is on a line through the center of the job.

(4) Suppose a job requires nine strips. Draw the first flight line in the exact center of the job. Next divide the entire width of the job into eight equal spacings. By means of a compass or ruler mark four spaces on each side of the center line equal to the spacing just determined and draw lines through these points parallel to the center line. The result obtained is nine lines indicating nine flights across the job. The two outer flight lines will fall along the edge of the job.

(5) Should an even number of flights be required, such as eight, divide the job into seven equal spaces. Draw the two center lines so that any point midway between them will be on a line through the exact center. Construct the remaining lines to the left and right of the two center lines, and the map is ready. When completed, the map will have seven spaces between flight lines, each equal to 50 per-

cent of the actual lateral ground coverage. As in the first instance, the two outer flights will be along the edge of the job.

14. Installation of camera equipment.—*a.* It is the duty of the cameraman to install all necessary camera equipment in the airplane and to ascertain that the equipment is in proper working condition. This will include the complete aerial camera unit which is most adaptable to the particular mission, with all its necessary accessories. Should the mission require more than one roll of film, additional film either loaded in magazines or suitable for daylight loading must be included. In addition to the standard camera accessories, a list of which will be found in the Technical Order pertinent to the particular camera, the cameraman should supply himself with a pencil, adhesive tape, lens tissue, data pad, a piece of safety wire, and adequate flying clothes. These items are not necessary parts of the camera apparatus, but should be included if possible. For example, adhesive tape may be used to repair a faulty or broken electrical connection; lens tissue may be needed to clean the lens; or a piece of safety wire may be needed to hold a venturi tube in place. A data pad is used to tabulate any information which may be of value to the laboratory crew or any personnel who may be called upon to use or file the film.

b. In addition to a careful and comprehensive inspection of the camera and accessories, the following items should be inspected prior to the take-off:

(1) *Oxygen tank.*—Inspect as to amount of oxygen and working order.

(2) *Camera compartment.*—Inspect for cleanliness.

(3) *Inside and outside of fuselage near the camera opening.*—Special precautions should be taken against oil or fluids, which should be removed if present.

(4) *Camera hatch.*—Test for operation. It should be closed during take-off and landing. If the camera is mounted in the bomb bay, this should also be closed during take-off and landing.

c. Check operation of camera and any accessories which are to be used on the flight. The photograph crew must be so prepared that they can satisfactorily complete their mission at any required altitude.

15. Use of filters.—Views from high altitudes appear to be "veiled over" by a bluish color, frequently even on clear days. A similar veiling over appears at much lower altitudes when the view is over a great expanse of territory. Usually, the greater the distance of the view, the more pronounced will be the obscuring of detail. This obscuring of visual detail is caused by a scattering of the light within the atmosphere. The veiling over is called haze. Haze has a detrimental effect upon photography because in itself it produces an exposure. A subsequent blocking out of the image formation of the subject on the sensitized material follows. The scattered light causing haze is very actinic and is composed primarily of the blue rays of the spectrum. Consequently, if a filter whose absorption lies within the blue is used, the effect of haze will be reduced. Filters used in aerial photography include various shades of yellow, orange, and extend far into the red.

a. What filter to use.—The greater the amount of haze present, the greater must be the haze absorptive power of the filter used. Exposures made at low altitudes require very little filtering, frequently none. Usually, altitudes of 2,000 feet or less do not require the use of a filter unless haze is plainly evident. Exposures without the aid of a filter may also be satisfactorily made when the haze is light or apparently lacking at altitudes from 2,000 to 5,000 feet. However, at these altitudes, haze may be present in sufficient quantity to warrant the use of a deep yellow filter. As the altitude increases, the filter action must increase. When 20,000 feet is reached, a yellow or orange filter is often insufficient, and a red filter is used. The No. 25–A red is most commonly used at these higher altitudes. Filters of greater absorption are needed only for special purposes, such as infrared photography, or when extremely adverse haze conditions exist.

b. Filter factors.—Definite filter factors cannot be given except when all conditions affecting exposure are known. The general light conditions, particular filter used, and the color sensitivity of the emulsion are factors which determine the necessary exposure increase. These factors cannot be known except in a specific instance. Filter exposure factor cards are published from time to time, and the photographer should familiarize himself with them. However, it is sufficient to state that filter exposure factors increase with the filter absorptive property. A light yellow filter will, therefore, have a lower exposure factor than will a deep yellow. The same is true of any filter of a certain color. Orange filters usually have higher factors than do the yellows, and red filters have greater factors than either yellow or orange.

16. Teamwork in the air.—The pilot, the navigator, and the cameraman must work in absolute unison in order to attain maximum success. In the absence of special navigating personnel, the duties of the navigator primarily will revert to the pilot.

17. Photographing the area.—Prior to the take-off, the pilot should have full instructions regarding any factor relative to the mission. He should have a flight map in his possession which has been prepared by the photographer, as well as instructions relative to the altitude he is to maintain. There should be an understanding between pilot and photographer as to where to start photographing the mission. This starting point may or may not be shown on the flight map.

a. Approaching first flight line.—When the airplane has attached the speed and altitude at which the job is to be flown, the photographer is in a position to ascertain the interval between exposures necessary to the desired overlap. Simultaneously, he also checks the airplane for drift and crab. In order to make these checks and the necessary mechanical adjustments to compensate for any discrepancies which may exist, the pilot should aline the airplane to the first flight line while still some distance from it. In order to afford the cameraman maximum opportunity accurately to make his computations with their subsequent adjustments, the pilot must maintain his craft at the altitude stipulated for this mission. He must also keep the airplane in level flight, at a constant speed, and alined to the flight line.

b. Determining exposure interval.—(1) The cameraman will watch the passage of the image of a ground object over the view finder ground glass and note the lapse of time necessary for it to pass between the two horizontal transverse lines on the ground glass which represents 40 percent of the actual longitudinal plate coverage. Forty percent of the coverage is used because 60 percent of the full plate coverage is the longitudinal overlap. (100%−60%=40%, or advance between exposures.) The time required for the image to pass between these lines is the correct interval of time between exposures. If exposures are to be made by automatic operation of the shutter, the intervalometer should be set to coincide with this measured time. However, since intervalometers cannot be set for a fractional part of a second, any fractional part of a second necessary for the image to travel the required distance must be dropped. This will increase the overlap of exposures but will insure that it is sufficient.

(2) The transverse lines drawn on the view finder ground glass must be so spaced as to represent the advance between exposures. To determine the spacing the following formula is used:

Let

F=focal length of camera lens
f=focal length of view finder lens
d=longitudinal plate distance (40% d=advance per exposure)
x=transverse line separation on view finder ground glass

Then,

$$F : f :: 40\% : x$$

Presupposing a 12-inch camera lens, a 10-inch view finder lens, and a 7-inch longitudinal plate distance, proceed as follows:

$$12 : 10 :: (40\% \text{ of } 7) : x \text{ (or } 12) : 10 :: 2.8 : x$$

$$12x = 28$$

$$x = 2\tfrac{1}{3}$$

∴ the separation of the view finder transverse lines will be 2⅓ inches.

c. *Alinement of camera to flight line.*—(1) Simultaneously with determining the time interval, the photographer alines his view finder and camera to the line of flight. In doing so he may find that the longitudinal axis of the ship is not alined to its direction of flight. The airplane is then said to be "crabbed." Crabbing is caused by a side wind which necessitates the heading of the airplane slightly into the wind in order to keep it on a definite flight line. To compensate for this crabbing of the airplane, the camera must be crabbed in reference to its alinement to the ship in the direction opposite to the crab of the ship and in the line of actual flight travel. To adjust properly for crab, the cameraman has only to adjust the angle of view finder and camera until the image as seen on the ground glass passes along or parallel to the longitudinal rulings on the ground glass. Unless this is done, the effective coverage of the strip may be materially reduced. (See fig. 4.)

(2) Although it is primarily the duty of the pilot and navigator to maintain flight directly over the flight lines as indicated on the flight map (fig. 3), the photographer may be the first to note that the ship is drifting away from it. He will immediately notify the navigator of the discrepancy and the pilot will increase or decrease the crab of the plane sufficiently to maintain the desired line of flight. The camera and view finder must accordingly be readjusted to compensate for this change.

d. *Photographing first strip.*—The pilot will notify the cameraman to get ready for camera operation in sufficient time to allow for leveling of the camera. He will also direct the exact time for the first exposure. The cameraman then works independently of the pilot and navigator and will note from time to time the correctness of the exposure interval and the drift, if any, of the airplane from the flight line. Should drift exist, he will immediately notify the navigator, who directs any

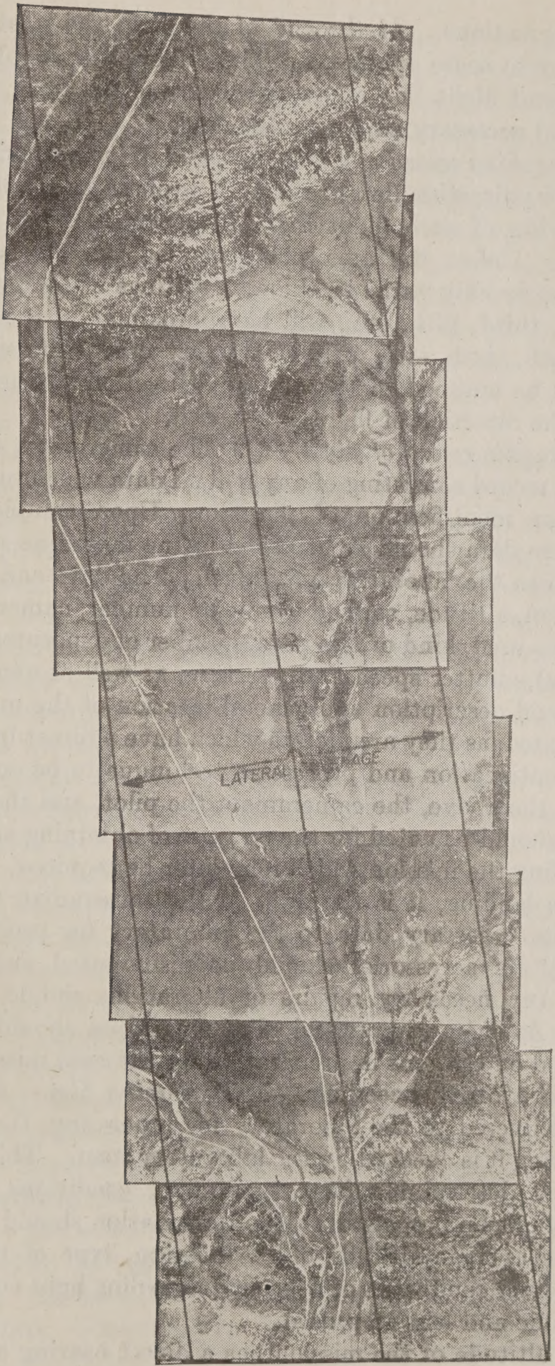
LATERAL COVERAGE

FIGURE 4.—Effective plate coverage reduced by improper crab adjustments.

necessary corrections. At the end of the strip the pilot directs the photographer to cease operation. The direction of flight is reversed and the second flight line approached as was the first, with similar notations and necessary adjustments made.

e. Photographing second and all subsequent strips.—It will usually be found that the direction (left or right) of airplane crab will be reversed with the flying of each flight line. The camera must be adjusted accordingly. Unless the area photographed is very large and air conditions noticeably variable, the crab settings will alternate. That is, the first, third, fifth, etc., will be approximately the same. The second, fourth, sixth, etc., will also be very nearly the same, but the camera will be crabbed in the opposite direction to the first, third, etc., since the direction of flight is reversed.

f. Photographic record of flight.—(1) The cameraman should maintain a flight record consisting of any and all data which may aid in the processing or identification of the film. Upon completion of the mission, these data should be attached to the magazine so that it will be available to the laboratory personnel. The date and time of day of the mission, altitude, camera magazine number, camera type, focal length of lens used, kind of film used, number of exposures made, filter used (if any), shutter speed and aperture, as well as general weather conditions and description and general location of the mission should all be tabulated, as they are factors which have a direct bearing on the negative identification and processing technique to be employed. In addition to the above, the cameraman, the pilot, and the type of airplane used should be noted for the purpose of obtaining any additional data regarding the mission which may later be required.

(2) Upon landing, it is the duty of the cameraman to deliver all film with its necessary data to the laboratory for processing. The camera and its accessories should be dismounted and thoroughly checked. Any necessary repairs or alterations should immediately be made. As soon as practical, film magazines should be reloaded and installed on cameras in preparation for the next mission.

18. Laboratory processing.—*a. Developing film.*—After the film has been delivered to the laboratory for processing, the information accompanying it is checked by the laboratory man. This information is a decided determining factor governing conditions under which the film should be processed. This information should contain such data as the average altitude of the mission, type of terrain photographed, actual conditions of exposure regarding light conditions, and exposure time and lens stop used.

(1) The altitude of the mission has a direct bearing on the time of

development necessary, since subject contrast or brightness varies with altitude. The higher the altitude, the less is the visual contrast of the terrain; consequently the time of development for high altitude photography should be greater than that for low altitude photography.

(2) The type of terrain photographed also directly influences the degree of development, both as to time of development and type of developer used. In general, exposures of low contrast subjects, such as flat, sandy ground, should be developed to obtain higher development contrast than exposures of higher contrast subjects, such as cultivated or populated terrain. With subjects of extremely low contrast, the type of developer is usually the variable; whereas with subjects of normal or near normal contrast, the time of development would be the variable.

(3) Contrasts vary considerably with light conditions. When a subject or normal contrast is photographed on a dull, overcast day, the brightness is very low. This condition would necessitate an increase in development time in order to reproduce the subject with normal contrast. If photographs were made either in early morning or late afternoon, shadows undoubtedly would be very long. This condition would not only necessitate longer exposure time than normal to render shadow detail, but would also require development manipulation. The exposure is not controllable by the laboratory man, but he can use a developer which will render maximum shadow detail. When photographs are made in normal sunlight, around the middle of the day, development should be for recommended normal time in a normal contrast developer. If filters have been used in exposure, this fact too must be considered by the laboratory man before starting development, otherwise the desired effect of the filter may be entirely lost by improper development. Since a filter actually changes effective film speed and subject contrast, development must be manipulated accordingly in order to obtain normal rendition.

b. Fixing, washing, and drying of aerial negatives.—At the completion of development, the negatives are rinsed and placed in the fixing bath. Fixation beyond normal time should be avoided, since there is a possibility of bleaching some of the shadow detail. After fixation, the negatives must be thoroughly washed and then dried. In order to produce uniform results, each roll of film from a particular mission should receive the same treatment as to fixing, washing, and drying.

c. Identification of negatives.—The next step after processing is identification. Each negative in a roll must be properly identified for future reference. Identification is facilitated if the negatives are placed on a plotting table. Complete directions for identification are included in Air Corps Circular 95-3.

d. Making prints.—In making mosaic prints, it is advisable for the laboratory worker to have the full range of contrast papers available so that he can select the paper most suited to the negatives. Prints used to lay a mosaic should be of identical color and tone, and should have full density with a "just below" normal contrast. This lower than normal contrast will insure full detail by preventing the shadow portions from blocking up. The problems of the interpreter will be minimized, and full rendition of detail will be easier to obtain in copying.

(1) To secure uniform printing results, it is quite necessary that standard conditions of development be observed. A developer of normal tone rendition should be used, and time and temperature controlled accurately. Conditions of fixing and washing also should be carefully standardized so that all prints will receive the same treatment.

(2) Prints made for mosaic assembly should not be ferrotyped, as ferrotyping tends to distort the scale of the print.

(3) Before prints are dried they should be treated with a solution which will cause them to remain pliable when dry. Carbitol acetate and glycerin are the chemicals most commonly used for this purpose.

(4) Prints should be dried by normal and standard methods and should be subjected to identical conditions of drying, since differences in scale might result from variations in drying procedure. Prints dried too quickly may shrink more than prints dried slowly. The prints should be dried on a stretcher, which is simply a cheesecloth or similar material stretched tightly on a framework. The prints should be laid face down on the stretcher. Blotting of prints prior to drying on the stretcher is permissible but not generally advisable. If the prints are blotted, the blotting should be very lightly done. If they are not blotted, surplus water should be allowed to drain by placing the prints on the back of an inclined tray or board for a few minutes.

19. Plotting area photographed.—After the film has been processed, it is necessary to determine whether or not the area has been adequately covered. In this determination, each exposure must be judged in reference to those adjoining it. There are two methods by which this can be determined: by plotting the individual area covered by each exposure on a map of the area, or by making a set of prints from the film and assembling them, usually by means of tape or thumbtacks.

a. Index map.—(1) An index map is a map or sketch upon which is plotted the area covered by each individual photograph. (See fig. 5.) Every negative must be carefully studied as to detail in order that these areas may be plotted; it must be compared with a

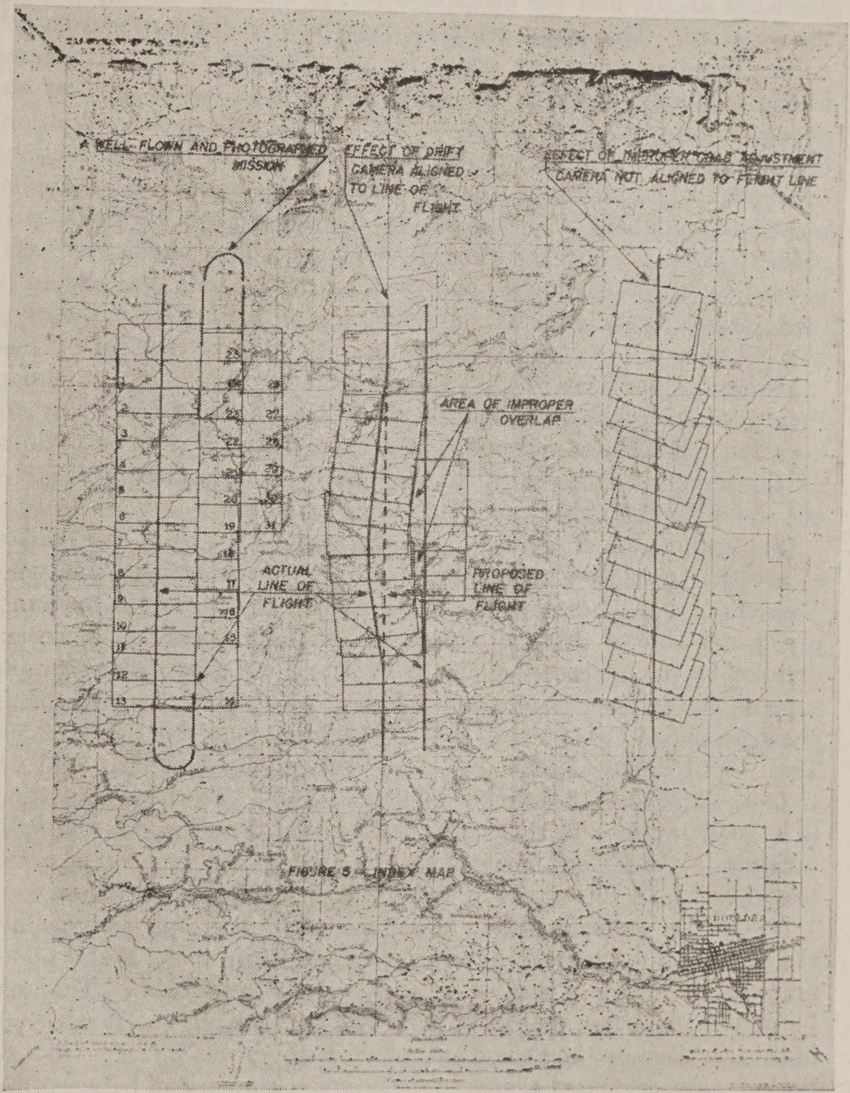
A WELL FLOWN AND PHOTOGRAPHED MISSION
EFFECT OF DRIFT CAMERA ALIGNED TO LINE OF FLIGHT
EFFECT OF IMPROPER CRAB ADJUSTMENT CAMERA NOT ALIGNED TO FLIGHT LINE
AREA OF IMPROPER OVERLAP
ACTUAL LINE OF FLIGHT
PROPOSED LINE OF FLIGHT
FIGURE 5 – INDEX MAP

FIGURE 5.– Index map.

map and must be plotted thereon by means of a template. The negative can best be studied by viewing with transmitted light from the back. The template used to plot the photographic coverage on the map is made to the scale of the map and of a size and shape which will represent the area covered by an individual exposure.

(2) Two templates should be constructed for plotting, one as described above, and the other of a size and shape to accommodate the negative. This larger template may be made of cardboard, such as the standard mounting board for photographs. Cut an opening in the cardboard equal to the shape and size as represented by the negative, leaving a 2- or 3-inch border. Mark off 1-inch graduations on all four sides of the rectangle and number them consecutively on each side. Graduations opposite each other should bear similar identifying numbers. The template is then placed over the negative in order to serve as a mask outlining the image. The smaller template is used to outline the photographed area on the map and should be made of clear celluloid. It should have graduated markings equivalent to those of the larger template and similarly marked. These markings aid in orienting the small template to the detail of the map, thus permitting the exact outlining of the area represented by the negative. Each area covered by an exposure may thus be outlined on the map. A study of this index map will determine whether or not the mission has been satisfactorily completed.

(3) As the scale of the map is to the scale of the print or negative, so are the template dimensions to the print or negative dimensions. Therefore, the dimensions of the template may be found by multiplying one side of the photograph by the reciprocal of its scale and dividing by the reciprocal of the scale of the map used. For example, suppose the print or photograph size is 7 by 9 inches, the scale of the photograph is 1:15,000 and the scale of the map used is 1:62,500. Then, $7 \times 15{,}000 \div 62{,}500 = 1.68$ (one side of the template, and $9 \times 15{,}000 \div 62{,}500 = 2.16$ (other side of template). To these dimensions it is good practice to add 0.04 inch to each to allow for the space taken up by the pencil in outlining the area on the map. The actual template size in this case will then be 1.72 inches by 2.2 inches.

(4) In the problem above, the image or photograph distance and the scale of the map are known factors, but the scale of the photograph must first be found in order to solve the problem. This may be done with a fair degree of accuracy by dividing the focal length of the lens used by the altitude at which the job was flown. ($F \div A =$ Scale.) For a greater degree of accuracy a comparison between map and photograph distance as compared to the ground distance may be made. The ground distance must be computed from the scale of the map. For example, 1 inch on a map of a scale of 1:62,500 means that 1 inch on the map represents 62,500 inches on the ground.

Should the distance under consideration be 1 inch on the map and 4 inches on the photograph, the scale of the photograph will be four times greater than that of the map. If the reciprocal of the map scale is divided by four, the reciprocal of the photograph scale will result. Therefore, ¼ of 62,500, or 15,625, represents the new reciprocal with the result that the scale of the photograph is 1:15,625.

b. Overlay method of plotting photographs.—Overlay plotting is a very satisfactory method of plotting photographs because it is both timesaving and efficient. By this method neither a map nor prints are necessary; therefore it is convenient when time is an important factor and also when photographs have been made of an unmapped area. The first step in the process is to place the roll of film on a plotting table. A strip of tracing tissue is then placed over the negatives. This tissue is pressed flat against the film and the four corners of the first negative are outlined upon it. In the zone of overlap between the first and second negatives and also in the zone of sidelap between strips, the characteristic features of the photographed terrain are traced in with broken or dotted lines. These features should include such things as rivers, lakes, road junctions, building areas, odd-shaped fields, or any other distinct objects. This first negative trace is identified with its negative number and the second negative is brought into position. The second negative is outlined on the tissue and distinctive features overlapped by the third negative and the second strip are traced in. The procedures of outlining the corners of negatives, of tracing in characteristic features, and of identifying each trace with the negative number, are repeated for each negative of the strip. When scale distortion is present, it should be averaged in matching details in order to avoid too large a scale difference between tracings. When the first strip is completed, a new strip of tissue is laid over the second negative strip and the procedure repeated for this strip. Each strip of the mosaic is treated in this way, and the completed tracings are clipped or otherwise fastened together. The completed mosaic tracing may be used as a line map; it may be used to check overlap and sidelap; or it may be used as an index map to check coverage.

c. Indexing by means of prints.—To make an index map with the aid of prints, match the prints carefully as to detail and staple or tape them together. After matching the prints in their individual strips to check the longitudinal overlap, complete the assembly by matching the strips. The prints should be trimmed to their collimating marks and assembled in such a manner that the number of each print will be plainly visible. The assembled prints may then be copied and the reproduction used as an index map. This reproduction should be properly identified and filed with the negatives. (See fig. 6.)

d. Use of index map.—(1) The index map is used to indicate the total area covered by the mission and to determine whether the mission has or has not been properly and completely photographed.

(2) It is used to assist in the selection of a particular negative or point to be located within the area photographed.

(3) It is also used by the mosaic maker to locate the most central print of the mosaic and to select prints suitable for the computation of the average scale of the mosaic.

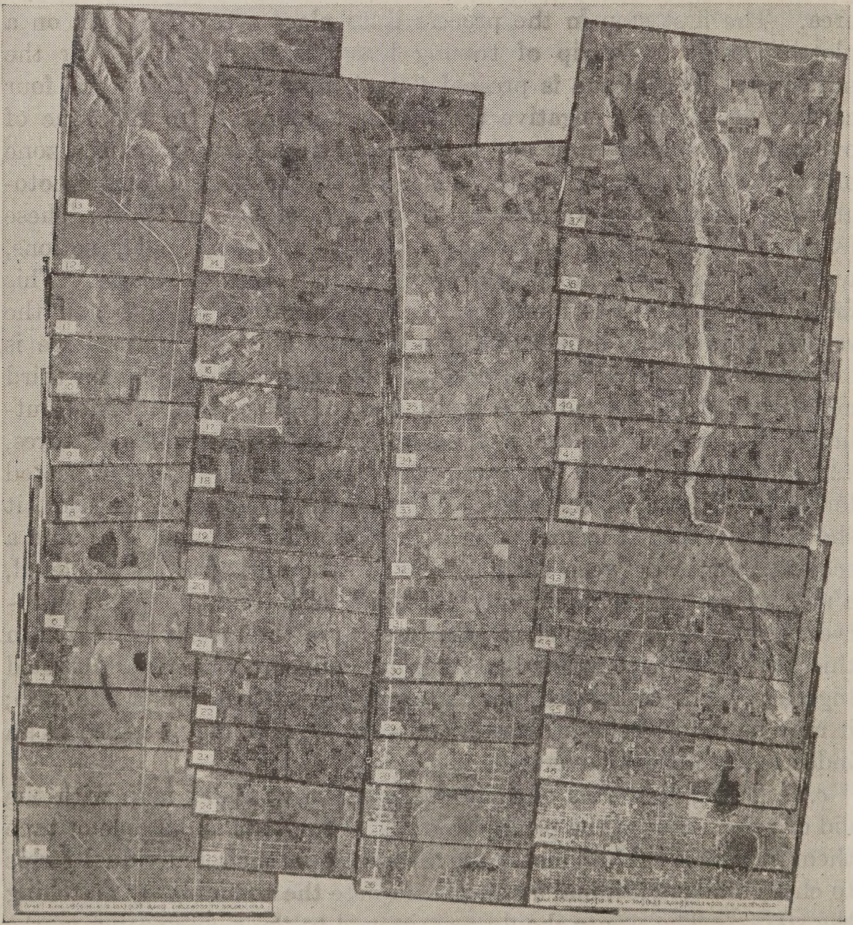

FIGURE 6.—Print map index.

SECTION II

AERIAL MOSAIC

Paragraph
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Types of adhesives and how to use them -- 22

20. General.—An aerial mosaic is an assembly of two or more overlapping vertical photographs and is the most common form of photomap. It often serves as a map substitute or supplement, and gains importance when a topographic map of the area does not exist or when it is desired to show current conditions or other detail not shown on existing maps. In intelligence studies, the mosaic is adaptable to studying ground features which cannot be followed out completely on a single photograph.

21. Selection of material for mounting.—*a. Ideal material.*—The material best suited for the mounting of prints in mosaic form should have a surface with a texture that will facilitate a firm and satisfactory adhesion of the prints. Above all, the mount should be of a material that will not readily shrink or stretch with atmospheric changes and will permit the drawing of lines and plotting of data upon its surface.

b. Material available.—If the mosaic is to be small, ordinary wallboard, strawboard, or bristol board of good quality will prove satisfactory provided its surface is not too rough or, on the other hand, not too highly glazed. On a very smooth surface, difficulty may be encountered in making the prints adhere. If it is desired to preserve the mosaic indefinitely, or if a high degree of accuracy is sought in the assembly, some rigid substance should be used, such as laminated wood, vehisote board, or other suitable material. The composition board known commercially as vehisote board has proved very satisfactory and is perhaps most generally used. Laminated wood makes an excellent support because of the fact that before or after assembly the board may be sawed to any desired size or shape. A number of such boards may be closely fitted together; and, in making the assembly, the prints can be pasted over the seams between boards. Vehisote board is generally recommended because the prints may be soaked from the surface after the mosaic has been copied, and the mount may be used again for future assemblies.

22. Types of adhesives and how to use them.—Two kinds of adhesives are in common use in mosaic assembly: gum arabic and rubber cement. The choice of adhesive is dependent upon the type of mount used and the purpose of the mosaic.

a. Gum arabic is very satisfactory for use on vehisote board. When gum arabic is used, the workman should be sure that it is reasonably fresh. It must also be in liquid form and of a consistency which will not readily congeal upon exposure to air. The actual consistency or thickness of the solution is somewhat dependent upon the grade or purity of the gum arabic crystals used. The gum should be freely applied to the back of the print as well as to the face of the mount. When the gum is applied to the print it should be well rubbed into the paper backing, especially near the edges. The print is then placed in its approximate position on the mount. The excess gum is removed by means of a squeegee and sponge. While this excess gum is being removed, the print is properly and accurately oriented on the mount. When it is required that the print be laid to control plotted on the mount, a control point indicator is used to assist in the accurate orientation. A control point indicator is an instrument which has a "rising and falling" needle suspended on a swinging arm or framework. The needle is first placed on the control point as plotted on the board. It is then raised and the print is placed into position beneath it. The control point plotted on the board must be recognizable on the print. It therefore becomes a process of orienting the print until the control point on the print coincides with the point of the needle when the needle is in its lowered position. Prints with an excess of gum arabic have a tendency to stretch. This is sometimes advantageous, while at other times it is a decided disadvantage. Generally, the workman should strive to duplicate the treatment of all prints and should not necessarily try to maintain a minimum of stretch. Sometimes it may be necessary to increase materially the stretching of a particular print, in which case the print may be allowed to soak for a while in the gum solution. The same effect is gained by soaking the print in water, but trouble may be encountered later in using the gum, as its adhering qualities to the paper backing of the print will be greatly lessened.

b. When rubber cement is used, the cement is applied to both surfaces and allowed to dry thoroughly. When dry and placed together the two surfaces adhere immediately, with the result that the print cannot be shifted or removed without the aid of a solvent, such as benzine or gasoline. It is therefore very important that the workman place the print at the first attempt in the desired position. Rubber cement does not stretch the print in the least; therefore, mounted or unmounted, the scale of the print is unchanged. Mosaics laid with rubber cement are usually joined by butting adjacent prints together rather than by overlapping them as is done when using gum arabic. Rubber cement is particularly useful when a mosaic is to be mounted on paper, wallboard, or similar porous substances which readily absorb water. However, rubber cement is not recommended for use with porous substances which will readily permit the passage of air and cause deterioration of the cement.

SECTION III

CONTROLLED MOSAIC

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Construction of polyconic projection 27
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23. Scaling prints.—*a. Scale strips.*—When a mosaic is assembled to control, it is very important that the scale of the prints be known and that no great variations of scale exist between different prints of the assembly. If the scale of a set of prints is assumed to be satisfactorily uniform throughout, the workman must determine what that scale is before he can plot the control data on the mount. In order that this scale may be determined, one or more scale strips are laid. From the scale strips, measurements are made between known points and the scale is computed from the data thus obtained. The average scale represented by the scale strips is accepted as the average scale of all prints of the assembly.

b. Determining scale.—(1) When a scale test strip is laid, the index map is used as a means of determining what prints are to be assembled. The strip laid should contain prints from as many strips of the job as possible, in order that the mean scale of the various strips may be arrived at. In the selection of the distance to be measured, two points must be selected whose exact geographic positions are known. These positions may be found in a set of engineer field notes for that territory. From the index map the exact prints needed for the scale strip may be selected. These prints are carefully assembled on the mount by the use of the same method by which the completed mosaic assembly is to be made. If gum arabic, which is the most common adhesive, is used on the scale strip, it should also be used to lay the mosaic. Individual workmen have individual characteristics of manipulation; consequently whoever lays the scale strip should also lay the mosaic. Workmen who are proficient in this art and are accustomed to working together can, however, combine their efforts to very good advantage. The scale strip must be very carefully laid by matching the detail of overlapping prints. After this is completed, the distance between the two known geographic locations is carefully meaured to within 0.01 inch. (See fig. 7.) When this distance is compared with the actual ground distance as a ratio, the average scale of the mosaic will be the result. For example, if the distance measured on the strip is 21.4 inches and its corresponding ground distance is 3 miles, the problem is solved as follows:

21.4 inches = Print distance (PD)
3 miles = Ground distance (GD)

Formula

$$\frac{PD}{GD}=\text{Scale}$$

$$\therefore \frac{21.4\text{ inches}}{3\text{ miles}}=\text{Scale}$$

In order that this problem may be solved, the numerator and denominator must be expressed in like units of measurement.

$$\therefore \frac{21.4}{3\times 63{,}360}=\frac{21.4}{190{,}080}=\text{Scale}$$

To obtain this scale to a representative fraction, divide the denominator by the numerator. The result will be the denominator of the new fraction whose numerator is 1.

$$190{,}080\div 21.4=8{,}882$$

Therefore, $\frac{21.4}{190{,}080}$ or $\frac{1}{8{,}882}$ = the scale of the strip as a representative fraction.

(2) In the problem above the ground distance of 3 miles was assumed, but the print distance corresponding to it was measurable. The ground distance may be computed from a map of the territory by multiplying the measured distance on the map by the reciprocal of the map scale. Since the map distance is ordinarily measured in inches, the ground distance found by this computation will likewise be in inches and may be changed to desirable units of measurement by suitable calculation. The result can only be as accurate as the scale of the map, and is generally not considered sufficiently accurate for

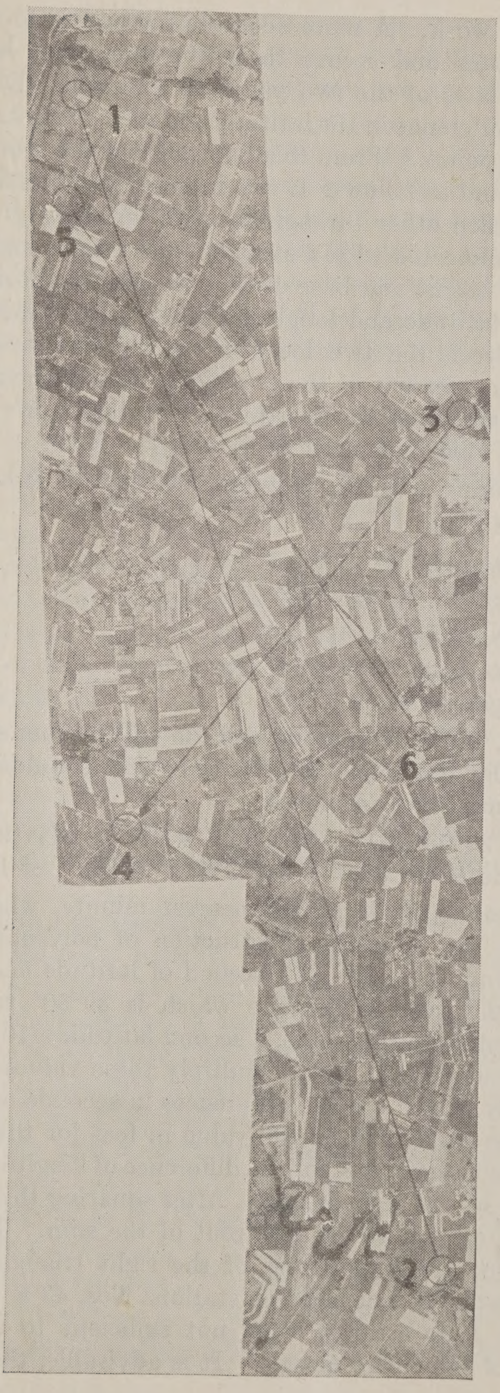

FIGURE 7.—Scale strip.

mosaic assembly work. A more accurate method is to refer to the engineer field notes and secure therefrom the exact latitude and longitude coordinates of the two points in question. Determine by subtraction the difference in the latitude and in the longitude readings between the two points. From this information, the ground distance in feet can be found as follows: If two intersecting lines are drawn at right angles to each other through the two locations given and the two points are connected with a straight line, a right angled triangle is formed. The height and base of the triangle thus formed may be found from the latitude and longitude differences. The hypotenuse or distance between the two locations can then be computed by squaring the measurement of the two sides, adding the squares thus obtained, and extracting the square root of the sum. For further clarification the following problem is solved:

Assume two stations, with numbers and locations as follows:

Station No. 43
  Latitude 39°47′21.0″
  Longitude 88°58′38.2″
Station No. 27
  Latitude 39°53′34.1″
  Longitude 88°53′52.2″

By subtraction, the difference in latitude will be found to be 373.1 seconds, and the difference in longitude 286 seconds. This subtraction is accomplished as follows:

Latitude 39°53′34.1″−39°47′21″=373.1″ of latitude
Longitude 88°58′38.2″−88°53′52.2″=286″ of longitude

Taking the mean latitude at the nearest minute, which would be 39°50′, refer to the table for construction of polyconic projections (app. V) and find the value of 1 second of latitude and 1 second of longitude for the average latitude which is 39°50′ to the nearest minute. According to this table, 1 second latitude=101.18 feet; and 1 second longitude=78.01 feet. Multiply these values by 373.1 and 286, respectively, which are the differences in seconds of latitude and longitude. The result will be the value in feet for the difference of latitude and the value in feet for the difference of longitude or, in other words, the two legs of the triangle. After squaring these and adding them together, extract the square root of the sum. The result obtained represents the hypotenuse of the right triangle or, in other words, the distance in feet between stations Nos. 43 and 27.

(3) A single scale strip is often not sufficient to secure a good average scale of the entire mosaic. It is advisable, therefore, to lay

two or three strips of different parts of the territory. This is especially important if the elevation of the terrain should change radically; or if it is suspected that the flying altitude has varied any appreciable amount.

24. Control network.—*a*. When a mosaic is laid to control it is necessary that control data be first drawn upon the face of the mount. The prints of the assembly are then laid in such a manner that certain predetermined points or locations on the prints will superimpose the control data as plotted. The most accurate method of laying a mosaic to control is to lay it to the control of established ground survey data. This necessitates the construction of a map projection and the plotting thereon of ground survey data.

b. There are four standard procedures generally used to lay a mosaic to a control network. This manual shall consider and explain the use of each and depend upon the ingenuity of the workman to combine the systems when it would be advantageous to do so. These standard procedures are:

(1) *Map projection.*—Usually a polyconic projection on which are plotted the locations of ground survey data.

(2) *Radial line.*—A system by which locations are established by the intersection of radial lines drawn from the centers or near centers of the photographs.

(3) *Pantographic transfer.*—A means by which control data is transferred from a map to form the basis of control for the construction of the mosaic.

(4) *Straight line assembly.*—A method whereby the prints of the assembly are laid to the control of a straight line drawn on the mosaic mount.

25. Polyconic projection.—There are several distinct types of map projections, each with its individual characteristic scale distortions. The polyconic projection is generally accepted as the most satisfactory when applied to small areas at indiscriminate locations on the surface of the earth. An explanation of the theory of the polyconic projection and data necessary for the construction of the projections are contained in appendixes IV and V.

26. Latitude and longitude.—Latitude and longitude lines are drawn on a map in order to indicate locations. Distances are read and measured in degrees of arc, the greatest distance or single measurement being one degree (written 1°). A degree is divided into 60 equal parts, each part called a minute. The minute is also divided into 60 equal parts, each part called a second. A latitude location signifies a distance north or south of the equator. A longitude location signifies a distance east or west in respect to the prime meridian, which passes through Greenwich, England. The equator is an imaginary line which encircles the earth and is midway between the north and south poles. Lines drawn parallel to the equator will indicate the distance north or south of the equator, or the latitude, and are known as parallels of latitude. When a parallel is to be located, the distance north or south of the equator is read on a longitudinal line. Longitudinal lines, commonly called meridians, are lines drawn from pole to pole. A series of meridians will, therefore, converge at the poles.

They are not parallel to each other as are the latitudinal lines. The description so far has been referring to meridians and parallels as inscribed on a globe representing the earth. When these lines are transferred to a plane or flat surface, certain distortions present themselves. The parallels of latitude, which are straight and parallel, become curved, with the result that any east-west direction becomes distorted in reference to its true direction as applied to the projection inscribed on the spheroid. Since meridians converge at the poles, north-south distances cannot be considered as parallel to each other over any great expanse. The value of, or ground distance represented by, 1° of longitude decreases as the poles are approached, the decrease becoming more rapid as the distance from the pole becomes less. A meridian is a part of a great circle, and degree values along it would be constant if the earth were a perfect sphere. However, the earth is not a perfect sphere and has a decided flattening at the poles. Therefore, variations of ground distances as computed from degree measurements along a meridian do exist, especially at the poles. Tables of ground distances as compared to their geographic readings have been computed for the various localities on the surface of the earth. In drawing a map projection, these tables must be taken into consideration. In the construction of a mosaic or photomap, only a small area is involved, and the characteristic distortion of the map projection is minimized accordingly.

27. Construction of polyconic projection.—*a.* Since a mosaic of aerial photographs is always laid at relatively large scale, the construction of a polyconic projection as discussed in this manual will be limited to a large-scale projection.

b. The work of drawing a polyconic projection is begun by drawing two lines at right angles to each other. These lines must be very accurately drawn, since they serve as the basis for the entire projection. Latitude and longitude lines are next drawn to the left and to the right of these construction lines, usually at 5-minute intervals. If convenient, the center construction line may be used as the central meridian for the project; if not, the first meridian to its left and to its right is usually laid off at 2½ minutes, which is one-half the desired spacing of 5 minutes. Latitude and longitude lines which represent distances and directions on a curved surface cannot be drawn on a plane surface without certain apparent distortions. When the map projection covers an area of 1° of longitude or less, all longitudinal lines are drawn straight, but the actual convergence, while slight, is still perceptible. Therefore, the draftsman must so construct the grid as to allow for this convergence.

28. Plotting points on polyconic projection.—The survey data or surveyor's field notes will usually give positions which the surveyor has located by their true terrestrial latitude and longitude. The polyconic projection is a method of indicating latitude and longitude on a plane surface. Therefore, by the use of the latitude and longitude values of the points given by the surveyor as rectilinear coordinates, these points may be plotted on the polyconic projection. Two methods are in general use and both are equally satisfactory. They are described in the paragraphs below.

29. Coordinate scale method of plotting control.—*a. General.*—After the polyconic projection has been divided into rectangles of 1 minute or a fraction thereof, a coordinate scale is cut, the dimensions of which are equal to those of the smallest rectangle in the projection. Each side of the scale is then divided into equal parts, each part representing 1 second of latitude or longitude. By placing the scale over the proper rectangle and moving it back and forth until the required added seconds north and west are lined up with the border lines of the rectangle in the projection, the location of the control point may be indicated at the corner of the scale. (See fig. 8.) It should be remembered here that in the United States longitude increases from east to west and that latitude increases from south to north; that is, longitude increases as we move west, and latitude as we move north. This may be easily borne in mind if it is remembered that the prime meridian which passes through Greenwich is the origin of longitude and the equator is the origin of latitude.

b. Selection of control.—Much time and labor may be saved by plotting on the projection only those control points that can be accurately located on the photograph. Stations which are but an inch a part should not both be plotted.

30. Plotting control points with scale.—A finely graduated scale should be selected whose units are adaptable to use with the projection. With a normal projection plotted to minutes of longitude and latitude, the scale may be used as a proportion guide to divide

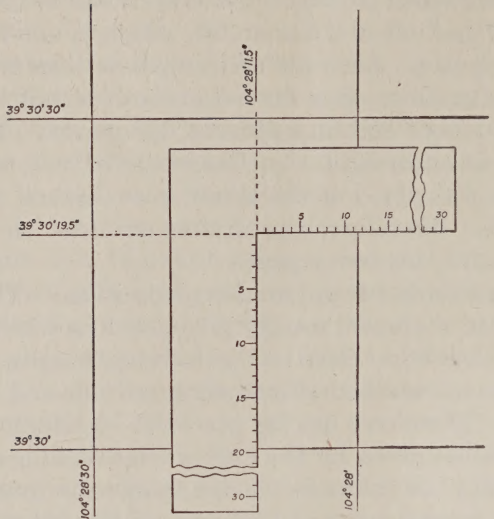
39°30'30"
104°28'11.5"
39°30'19.5"
5
10
15
30
5
10
15
20
30
39°30'
104°28'30"
104°28'

FIGURE 8.—Coordinate scale used on 30-second quadrangle.

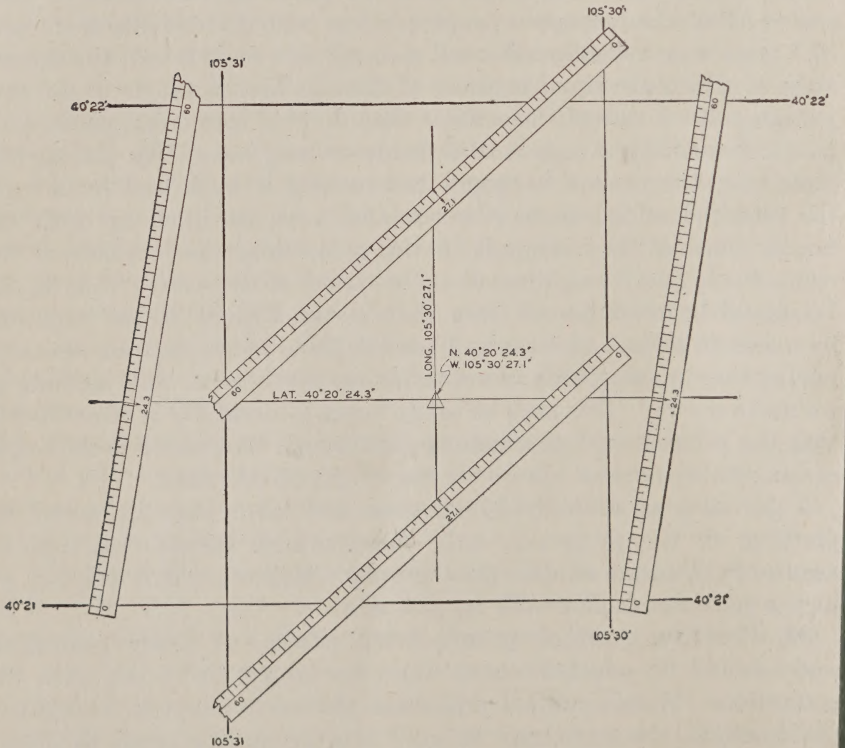
105°30'
105°31'
40°22'
40°22'
60
0
27.1
LONG. 105°30'27.1"
N. 40°20'24.3"
W. 105°30'27.1"
LAT. 40°20'24.3"
24.3
24.3
40°21
40°21
105°30'
105°31

FIGURE 9.—Use of graduated scale for plotting points.

each minute into seconds and decimals of a second. By using the scale so that 60 units are subtended by the parallels, the latitude may be plotted and a dot pricked on the projection within the rectangle of interest to indicate this plot. This operation should then be repeated at least 3 inches away and a fine line drawn connecting the two dots. Longitude may be plotted in a similar manner by placing the scale so that it crosses two meridians. The plotted position of the control point will be represented by the intersection of the two fine lines (fig. 9). The intersection is then marked by a needle prick under magnification. This needle prick is then identified as the control point by either encircling it or drawing a triangle around it. The station number may be indicated or the coordinates of the point may be written lightly nearby. The same procedure is followed for other points in the same or in other rectangles of the projection.

31. Radial line control.—*a. General.*—Radial line control is a system of control based on the theory that all angular measurements around the center of a vertical photograph are correct regardless of the scale of the photograph. The construction of a radial line control net is similar to plane table intersection work. Prints to be used for the construction of a radial line control network should have a longitudinal overlap of approximately 60 percent, although a lateral overlap of as little as 10 percent is sufficient. When a radial line control network is worked out, it is the usual practice to restitute the prints to the scale of the radial line plot by means of a template. The flying instructions for a job of this nature usually call for a lateral overlap of 20 percent plus or minus 10 percent. An overlap greater than 30 percent is not desirable, and less than 10 percent is hazardous. Since restitution of prints is mandatory to the best interests of accurate control, it will be taken into consideration in the ensuing discussion.

b. Cause of image distortions.—Errors in the scale of an aerial negative are caused by camera tilt or swing, by uneven terrain, by altitude variations, or by the optical limitations of the lens used. If the camera focal plane is not parallel to the earth at the instant of exposure the scale of the resulting negative will gradually reduce in the general direction the camera is pointed. This is true because the farther a subject is from the camera, the smaller will be the image recorded on its focal plane. Sharp increases or decreases in the ground elevation will frequently produce very troublesome out-of-scale areas. For the purpose of accuracy, these out-of-scale areas must be reduced or enlarged in scale so that they will match the average scale of the job. Perfect scaling throughout is often impossible, but can be approached and approximated by ratio or restitutional printing. As the altitude increases, the scale of the image decreases; conversely, as the altitude decreases, the scale of the image increases. Exposures made with either an increase or decrease of altitude may or may not have scale errors within themselves, but it is evident that such exposures will have a scale different from the exposures made at the correct flying altitude unless the terrain elevation should happen to vary so as to compensate exactly for the altitude variation. Since this latter supposition is impractical, the image produced when the altitude is in conflict with the correct flying altitude must be altered in scale so that it will match that produced when flying at the correct altitude. The printing necessary in this case often is simply enlarging or reducing the over-all scale without restitution. Such printing is called "ratio work." Those errors of scale due to the optical inability of the lens to record a true-scaled image properly are not generally troublesome, since it is not customary to use a lens of inferior optical quality.

32. Radial line plot.—*a. General.*—To restitute or project an image on a template, it is first necessary that a template be produced. For this purpose, the job is first contact printed. For best results, the negatives should be printed on a double weight or an aero-mapping paper in order to reduce to a minimum the possibility of stretch and shrinkage. Photographic quality is not the first consideration in making this set of prints, but the processing should be such that the scale of the contact print will duplicate that of the negative. It is imperative, therefore, that all prints be given the same processing treatment so that any stretch or shrinkage in one print will be duplicated in the next and all subsequent prints.

b. Selection of points.—Beginning with the second print, a minimum of nine points is selected and marked on each photograph. The first print has only six points. Each point is identified on the negative by means of a pinprick or small ink dot. The points are so selected that one will fall near the center of the photograph and the eight others will be distributed near the borders. They will then form the corners of four roughly outlined rectangles. The exact center of the photograph must also be located and its location shown by a plus or cross sign and then encircled and marked with a compound number, the first number indicating the number of the print on which the selected points first appeared, and the second number indicating the number of the point on the particular print. If more than one strip is to be in the assembly, the points selected which appear in the strip overlap should appear in both strips to serve as ties from one strip to another. It is not important that all points in the side overlap be used as ties, but the greater the number used the better will be the general comparison of scale between strips. A draftsman thoroughly familiar with his work will select tie points of a known location which span a distance of about 10 prints. He will then fit his plot between them without reference to intervening selected points of adjoining strips.

c. Laying out plot.—After the points are selected and labeled, the series of photographs are laid out in consecutive order, overlapping one another in the areas of matching detail. This is done in order to properly orient the first print. A sheet of transparent celluloid is next placed over the prints. Lines are drawn from the principal point of the photograph through all the selected points. To avoid confusion, the line should be drawn on the sheet near the selected point only and not extended through the center point. When this has been accomplished, orient the next photograph to the celluloid and orient the first print by means of the points lying nearest the center of the photograph. Draw lines through the selected points as in the first instance. Proceed in like manner with all prints of the strip. It will often be found that a distance as shown on one photograph is not the same as indicated by another. This indicates a tilted photograph or a radical change in ground relief. In this case, proceed as before and place the selected center points over the point which represents its location on the previous print. If the two outside selected points do not fall along the radial line established by the previous print, shift the print along the center line (which is a line bisecting the print in the direction of the line of flight and passing through the center point) until each point falls on its proper radial line. If one outer point falls outside its radial line and the other inside, shift the assembly until the distances (outside and inside) are equal. If the distance is great, check preceding prints of the plot, as this condition signifies poor orientation of previous photographs. Bear in mind that orientations are always made by points near the center line regardless of the positions of the outer points. Whenever outer points fail to fall exactly on their radial lines, the three lines drawn will form a triangle. The center of the triangle is to be taken as the true location of the point. The location of the point occurs where the radial lines intersect at the same point.

d. Template.—After the locations of all selected points are determined and plotted on the sheet, templates of tracing paper are made for each negative or print. The locations of the four outlying selected points are spotted on the template, which is properly labeled for identification, as are the points. If the ground elevation changes radically over some part of the photograph, it is necessary that two or more templates be made and that more points be used in the making of the template. The template is to be used as a guide in the restitution of the print. The points selected have been previously marked on the negative, and it is the object of restitutional printing to cause the points as marked on the negative to fall on the print in such a manner that they will exactly coincide with the indicated location on the templates.

e. Apparatus necessary for restitutional printing.—Restitutional printing is of necessity a process of projection printing. The uneven scale of a vertical photograph is caused by unequal distances from the subject to lens. With every increase in ground elevation there is a decrease in the distance between the lens and subject and an increase in photo-scale. If the camera were tilted, this distance would gradually change over the entire area and the photograph would have a varied scale throughout. Banking, climbing, or diving of the airplane, however slight, will have a similar effect unless the cameraman is able to maintain the camera level with the ground. A restitutional printer is so constructed that it can be adjusted in order to rectify the errors made when exposing the negative. If a negative was made with the camera tilted, the negative or printing easel must be tilted in the opposite direction to the indicated tilt when printed in order to bring the image to an even scale. Printers are made with a tilting and rotating negative carriage, lens, and easel. In making the print, the projector lens should be tilted in the direction opposite to that of the camera lens in respect to the earth's surface. The easel is then placed at right angles to the lens axis to aid the lens in focusing. Unless the tilt is parallel or at right angles to the line of flight, it will be necessary to rotate the easel and the lens until they can be tilted to approximate the direction of increasing or decreasing scale errors. In restituting with the use of a template, the template is placed on the easel, and the image is made to coincide with the template. This is best done by the trial and error method, first roughly adjusting the easel, then the lens. The negative plane need not be tilted except as an aid to critical focus.

33. Straight line control between two points.—When a mosaic is laid to plotted control from surveyor's field notes, it is often found that sufficient control is lacking to provide a control station for each print. It may happen that several prints over a wide expanse of territory are lacking in this plotted control. When these conditions exist, it is good practice to bridge the intervening space by laying a strip of prints to the control of a straight line between two control points on opposite sides and just beyond the uncontrolled area. For a description of straight line assembly of prints, see paragraph 44.

The only difference between a straight line assembly between two points and that of a reconnaissance strip as described in paragraph 43 is that when the assembly is between two points, the orientation of the photographs to be laid to the line must be done from both ends of the strip. If this is properly accomplished, the two end photographs are laid first. Since they are both oriented to the same line, it follows that they are also oriented to each other. After the entire strip has been laid, outlying prints can be added to the straight line assembly by the matched detail method. The size of the area involved largely determines the accuracy with which these prints can be assembled. If it is possible to make more than one straight line assembly it is advisable to do so as a means of reducing the number of prints whose only control is that of matching detail.

34. Pantograph.—*a.* A pantograph is a mechanical instrument used to transfer (or copy) drawings. The principal use of a pantograph to a photographic unit is to transfer control data from a map so as to form the basis of control for another.

b. There are many sorts of pantographs with varying capacities as to size and accuracy of projection obtainable. The one in general use is known as the precision pantograph. It consists primarily of a movable and adjustable parallelogram. The size of the parallelogram is the deciding factor of the scale of the projection. Definite instructions regarding pantograph adjustments and settings ordinarily accompany each instrument.

CHAPTER 3

RECONNAISSANCE PHOTOGRAPHY

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SECTION I

TYPES OF CAMERA WORK

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35. General.—Reconnaissance, or intelligence photography as it is often called, is that photographic work accomplished with the specific aim of providing information for a commander or for any echelons of command. It embraces both vertical and oblique camera work.

36. Cameraman's duty.—The cameraman's duty in reconnaissance work is essentially the same as in a mapping mission. He must be prepared to make exposures upon very short notice. While there will be no attempt to describe the different tactical situations under which reconnaissance photography is performed, it must be constantly borne in mind by the cameraman that he must be prepared for both oblique and vertical camera operation, and that he may be required to photograph moving objects. He also may be required to photograph objects of which it is possible to take but a single exposure. Typical examples would be hostile aircraft, camouflaged airdromes, gun emplacements, or other instruments of war. The determination of whether an objective is to be photographed vertically or obliquely and the manner in which the necessary photograph can best be secured under existing conditions, will depend upon the judgment of the cameraman. It is obvious that a cameraman employed on this duty must be readily responsive to the orders of the airplane commander, and he must also be prepared to act on his own initiative.

37. Cameraman's report.—The cameraman's report is essentially the same as that required in any aerial camera work, special attention being paid to any data which might be an aid to subject identification or location. Upon returning to the base, it is also the cameraman's duty to deliver the exposed film to the laboratory for processing, together with any information which may have a bearing on the correct processing of the film. Reports should also be rendered upon the functioning of all photographic equipment.

38. Mosaics.—The ordinary mosaic composed of several strips is quite limited in use for the purpose of reconnaissance or intelligence work. The reconnaissance single strip mosaic is more adaptable, and will be considered in section II.

39. Stereoscopic photography.—*a. General.*—In aerial stereoscopic photography the perception of depth or relief is obtained by simultaneously viewing two overlapping photographs which were made from different viewpoints. The purpose of stereoscopic photography is to provide a better means of studying territory or objects photographed.

b. How stereoscopic view is obtained.—In order to make exposures affording a stereoscopic view, two photographs from different camera locations are necessary. The average person sees objects from two viewpoints which are approximately 2.51 inches apart, this distance being the average interpupillary distance. As the distance from the object viewed increases, the effectiveness of the spacing between the two viewpoints decreases. This decrease may be so great that the actual perception of depth is entirely lost. When an object is at a greater distance than 50 yards, the perception of depth is quickly lost to the eye. In stereoscopic photography, the perception of depth can be maintained at any altitude by simply increasing the distance between the camera viewpoints. The greater the overlap of the prints, the less will be the relief of the stereoscopic effect; and, conversely, the less the overlap, the greater the stereoscopic effect. When a 7- by 9-inch plate is used, the standard longitudinal overlap of 60 percent will allow the image to travel 2.8 inches on the camera focal plane before the following exposure is made. This produces a slightly exaggerated relief, but is generally considered more satisfactory for viewing than normal separation. This is particularly true of photographs of flat terrain.

The percentage of overlap of the two images is the deciding factor in the perception of depth. This being the case, it is only necessary that the photographer produce photographs of the specified overlap of 60 percent. An overlap of 60 percent allows the image to travel

40 percent of the longitudinal (line of flight) dimension of the plate. Therefore, 40 percent of this plate dimension represents the distance the image should travel between exposures. For example, when using a 7- by 9-inch plate, the distance of 2.8 inches, as stipulated above, was obtained by taking 40 percent of 7 inches. (40% of 7 inches=2.8 inches.) Should a 9- by 9-inch plate be used, the image would travel 40 percent of 9 inches, or 3.6 inches, on the focal plane between exposures.

c. Overlap.—To overlap the exposures properly, it is only necessary that two horizontal lines be drawn on the ground glass view finder. These lines are so spaced as to be the equivalent of the distance the image must travel on the view finder glass. The photographer makes his first exposure as an object passes the first line and the second as it passes the second line. (See par. 17*b*.) This process is continued through the photographing of entire strips.

40. Pinpoint photography.—*a. General.*—When a picture of a definite object or location on the ground is made from a plane in flight, the procedure is called pinpointing and the resulting print is referred to as the pinpoint photograph. Pinpointing is generally accomplished by vertical photography. Although a single print may comprise the pinpoint photograph, the pinpoint is of more value if photographed so as to permit stereoscopic study. This will necessitate the making of two photographs with the proper percentage of overlap. The prints or exposures thus obtained are known as a stereo-pair. To enhance further stereoscopic study of the pinpoint, three properly overlapped exposures may be made, resulting in what is known as a stereo-triplet.

b. Use.—The pinpoint photograph is made for the purpose of intelligence study and will better serve its purpose if so made as to permit stereoscopic study, as considerably more information can be obtained from viewing an object of three dimensions than can be obtained from a two-dimensional view.

41. Oblique photography.—*a.* An oblique photograph is one made from an aerial viewpoint with the camera deflected from the perpendicular. Oblique photographs may be classified as high or low obliques. A high oblique is one which includes the horizon. A low oblique is one which does not include the horizon.

b. Photographs of airdromes should include some of the area just outside the boundaries of the landing field in order that an indication may be given as to the nature of the approaches. When buildings are present on the airdrome, the viewpoint selected should not place the buildings in the foreground. It is more desirable that they be along one side or in the background of the photograph. Photographs of buildings or structures should show at least two sides and will normally include the sunny side of the building. Similarly, a photograph of a bridge will not be made from a viewpoint at right angles to the bridge but from some angle between 30° and 60° in order to reveal the construction of piers or supports. Photographs of terrain made for the purpose of yielding information to advancing troops should be made from as low an altitude as practicable. Photographs of docks and wharves should generally be made at a fairly steep angle. Photographs of obstructions placed under water are best shown by vertical photographs.

c. Oblique photography requires greater effort on the part of the cameraman than does vertical photography. It also requires that the cameraman have a clear understanding of the nature of the objective and an ability to recognize it because of the limited time he will be in position to make the exposure. Active cooperation of the pilot is essential in all oblique photography. He must have a clear understanding of the photographic coverage which will be obtained at different altitudes and viewpoints, and he must also realize the problems of the cameraman and must avoid acceleration of the airplane except when necessary from a tactical viewpoint. The fastest shutter speed that will yield a satisfactory exposure should always be used in oblique work. This is very important at low altitudes, as the relative movement of the image on the plate is great, especially if the photograph is being made at right angles to the direction of flight. The camera should not rest upon a metallic portion of the airplane at any time during exposure, as the vibration of the ship will produce camera movement and result in a blurred image. The condition of the lens and the filter unit, the vacuum supply, the shutter mechanism, and the film rewinding mechanism should be frequently inspected.

SECTION II

RECONNAISSANCE STRIP MOSAIC

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42. Reconnaissance strip.—When a single strip of overlapping vertical aerial photographs is made, they constitute what is generally known as a reconnaissance strip. Usually such a strip of photographs is made directly over a central line of interest, such as a railroad, highway, stream, line of trenches, or coastline. The chief value of such work lies in its reconnaissance or intelligence application. Although the chief use of the reconnaissance strip is to secure information of an intelligence nature, it is also used in some instances as the basis for making a mosaic of unsurveyed territory, when surveyed territory lies close to the region. The value of the reconnaissance strip is greatly enhanced if the overlap is suitable for stereoscopic study.

43. Scale of reconnaissance strip.—When it is desired to obtain a specific scale in a reconnaissance strip, an altitude and a focal length should be selected which would be commensurate to that scale. When this is impossible, the negatives may be printed by projection and the prints brought to the required scale, or the strip may be assembled and copied to the required scale.

44. Straight line assembly of strip.—*a*. A system of assembly known as the straight line method is commonly used to lay reconnaissance strips. Prints are laid by this method to the control of a straight line drawn on a mounting board. The prints are trimmed, laid out in their proper sequence of exposure, and carefully matched according to detail. A straightedge is placed over the face of the prints to prevent any shifting of their positions. The edge of the straightedge should approximate the center of all photographs as closely as possible in order to orient correctly the direction of the strip. With the straightedge in this position, a straight line is drawn over the face of the end print. A line is also drawn on the mount at each end of the strip.

b. The prints may now be taken up and placed conveniently at hand. The lines on the mount are extended until they join.

c. On the print across which the straight line has been drawn, two easily recognizable points on the line are selected. The points selected should be as far apart as possible and must be included on the adjoining photograph. The two points are located on the second photograph and a fine line is drawn over the face of the print using the two points as guides. This process is continued with all subsequent prints of the strip. When this is done, each photograph will have a line drawn on it identical in azimuth to all lines drawn on the other prints.

d. Select the first print of the strip, featheredge it, and paste it to the board with gum arabic so that the line on the print will superimpose the line on the board. All excess gum arabic must be removed from beneath the print. A specially constructed squeegee or a stiff-backed safety razor blade may be used for the purpose. Approximately one-third of the overlapping portion of the second print is cut or torn off in such a manner that a proper featheredge is obtained. This print is now pasted to the mount so that it overlaps the first print, the detail matches on the line, and the line on the print superimposes the line on the mount. If this procedure is followed, the matching of detail to the right and left of the line on the print may be disregarded. The errors of detail matching which might result are more than offset by the gain received in scale accuracies. In fact, a mosaic or strip unusually well matched in detail is as a rule inferior in scale regularity unless the project has been properly restituted. This is due to the inaccuracies of flying and photographing. The results of these inaccuracies are most apparent when rough terrain is photographed. Proceed with the remaining prints as with the second.

e. In joining two prints together it is advisable that the amount of overlap of the prints be minimized by discarding as much of each print as is practical. As a rule, prints should not be laid with more than 1 inch overlap.

f. Sometimes it is impossible to lay a complete strip with a single straight line. If the reconnaissance flight abruptly changes direction, additional straight lines must be constructed in order to keep the straight line control near the center of the print. It can readily be ascertained if more than one line is needed by the shape of the strip and the position of the straightedge in reference to the strip assembly. When it is necessary to draw a new control line, this line is established in the new direction as was the first line drawn. The junction of the two lines will cause one print to have two lines drawn upon it. This print containing the two straight lines is oriented to both lines, preference being given to the new line. The direction of the print assembly is then transferred from the original straight line to the new direction, and the application of the straight line control remains practically unchanged.

SECTION III

AERO-CHARTING

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45. General.—*a*. Aero-charting is a method used by the Army Air Forces in the compilation of aeronautical charts which employs oblique aerial photographs, and consequently increases the speed of obtaining photographs to be used.

b. Photography for this purpose may be accomplished by multiple lens cameras or multiple camera installations. Though the trimetrogon method of charting is now in use and briefly described below, it is by no means the only method of obtaining satisfactory results. Development of a method for securing aerial photographs employing camera installation and camera angular relationship different from those used in trimetrogon charting and capable of larger coverage per air station is now in progress.

c. Details of methods used in the construction of aeronautical charts from trimetrogon aerial photographs and of photographic procedures will be covered in a separate publication.

46. Trimetrogon charting.—*a*. Photography for trimetrogon charting is accomplished with three cameras of identical types which are mounted in an airplane in such a way that one vertical and two oblique photographs are produced by simultaneous exposures. The angular relationship between the oblique photographs is approximately 120° in order to insure, without excessive tilt, a photograph from horizon to horizon with sufficient overlap on the vertical from each oblique to permit radial line intersection of points located on the three combined photographs.

b. A lens of 6-inch focal length is used to obtain the necessary coverage at the required scale. This lens is of metrogon type, possessing wide angle coverage and high optical corrections. Flight altitude is commonly maintained at approximately 20,000 feet with 60 percent overlap of the verticals in the line of flight, but altitudes up to the maximum obtainable in high performance airplanes will produce a photograph of usable scale for small-scale charts.

c. Points common to three photographs are reduced to a horizontal plane by intersection of radial lines. The correct horizontal location of points of transferring photographic control points make the method useful as a means of transferring photographic detail in the construction of a planimetric aeronautical chart.

d. Accurate approach and objective charts at scales of 1:62,000 to 1:250,000 are obtainable with this method, and production of relatively accurate planimetric charts at a larger scale is practicable. When maps or charts are required, the best obtainable will be used and the most rapid means of production will be employed, even at the sacrifice of theoretical accuracy.

CHAPTER 4

TECHNIQUE OF MOSAIC ASSEMBLY

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47. General.—The term "mosaic assembly" means pasting the photographs to the mount in mosaic form. It is often referred to as "laying" or "building." The necessary technique involved is explained in the paragraphs below.

48. Selecting and laying first print.—The selection of the first print is very important. It should contain three widely separated control points, and must be adhered to the mount with these control points exactly superimposing those plotted on the board. If properly selected and mounted, this print will serve as a valuable aid to the proper orientation of other prints in the mosaic.

49. Selection of adjacent prints.—The mosaic maker should next lay the prints which are adjacent to the first print. It is preferable to work around this first print rather than lay the job in strips, especially if the plotted control is in any way limited. This procedure, however, is subject to qualification, as for example in laying prints to a radial line network. A mosaic laid to a radial line plot is usually started by beginning at the edge of the job and laying the first print of each strip first, then the second print of each strip, then the third print, and so on until the mosaic is completed. When field notes are the only plotted control on the board, it will sometimes be found that control points are completely lacking for some individual prints. If possible, the workman should first lay the prints around this area, and then lay the intervening prints by the straight line method as explained in paragraph 44. When one print will cover this uncontrolled area, it can be satisfactorily laid by matching details with adjacent prints.

50. Featheredging print.—Featheredging involves tearing, cutting, and sandpapering the back of the print along its edges so as to secure an even appearance of the match or join between prints. Prior to cutting or tearing, the workman should decide exactly what part of the print is to be retained. If a road, a stream, or a definite line of demarcation is followed, a cut may sometimes be used to advantage in preference to a tear. However, a match line between two prints made with a cut is frequently mistaken in the photographic copy as a terrain feature and, therefore, should generally be avoided. A tear, especially if jagged, will in nearly all cases either be invisible in the copy or will appear as a match line of the original. This appearance is important to personnel engaged in interpreting the information to be gained from a study of the mosaic.

a. To trim or featheredge a print with a cut, an ordinary stiff-backed razor blade is quite satisfactory. The first step is to cut gently through the emulsion along the desired match line. The print is now folded backward, using the cut as a guide. If the print is then laid face down, the part to be discarded may be gently torn off. This tear should be made so that the sharp edge of the bevel will remain on the portion to be retained. If the beveled edge is now sandpapered, a uniform and fine edge will be left on the print, and the print will be ready for mounting.

b. Another method of cutting is to use a very sharp tool, such as an etching knife or scalpel, and cut completely through the print at an angle equivalent to the beveled edge of a tear. Then the print is placed face down on a smooth, hard surface. The cutting edge of the instrument is inclined at a low angle to the back of the print, and the paper base of the print is cut away leaving a tapered edge about ½ inch wide. This taper should extend from the thickness of the base through the emulsion of the print. This method requires more practice to achieve proficiency, but is faster and more satisfactory than the tearing method of featheredging because little or no sandpapering is necessary, and the possibility of tearing into the print or leaving a frilled emulsion edge when the print is laid is eliminated.

c. If a cut is made along a road or similar feature, it is good practice to retain the road on the print which is to be laid over a previously laid print. As a means of superimposing road over road when the cut is longer than 3 or 4 inches, a U-shaped notch must be cut into the road. The roads can then be superimposed accurately when the print is attached to the mount.

d. When a tear is used, it is well to moisten the back of the print slightly along the contemplated tear line. This will produce a jagged edge, which is desirable. The technique of sanding a torn print is somewhat different from that used on a cut. The sandpaper should be drawn directly away from the print and not along its edge, in order to refrain from demolishing the torn edge. A torn print does not require as fine a featheredge as does a cut print.

e. A torn edge is preferable to a cut over open territory in which no definite line of demarcation exists.

51. Orienting print to control network.—The process of orienting the print to the control network evolves itself into superimposing control points of the print over the control points which are plotted on the board. This can sometimes be done without the aid of instruments, but if the point in question is well away from the edge of the print, the use of a control point indicator is invaluable. The control point indicator is an instrument which supports an adjustable needle. The needle can be lowered to the mount at the exact location of the point plotted. To use the indicator, the needle is first placed directly over the control point on the board. The needle is then raised and the print is placed on the board and under the needle. The print is then oriented so that the control point on the print will be directly beneath the needle. Other control points on the print are oriented in the same manner to corresponding control points on the board. In order to ascertain definitely whether or not the print is correctly oriented on the mount, the needle should be lowered to the face of the print to check the position of the point on the print. The print must be permanently adhered to the board before the control point indicator is removed. When a mosaic is laid to control, the workman should bear in mind that a mosaic laid to proper scale is more valuable than one containing a good match of detail which has been poorly laid as to control.

52. Cleaning mosaic.—The workman should never allow gum arabic mucilage to dry either on the face of the mosaic or on the mount adjacent to the affixed prints. Any extraneous gum should be removed with a damp sponge immediately after the print has become properly adhered.

53. Finishing mosaic.—The appearance of the finished mosaic can be improved if the mosaic is bordered. The border should contain all information which is necessary for locating the geographic position of the job. Latitude and longitude coordinates are indicated on the border and on the edges of the mosaic by tick marks. If the mosaic is gridded, the grid lines must be numbered and identifiable within the proper grid zone. The grid lines may or may not extend over the mosaic. Somewhere near the border and on the mosaic, a graphic scale should be constructed. Since photographic papers are subject to stretch and contraction to a greater extent in one direction than in another, two such scales at right angles to each other should be placed on the mosaic. If the border of the mosaic is composed of material similar to that of the prints, the graphic scale may be placed on the border. However, the border material must then be laid in a manner similar to that of the prints, and due respect must be paid to the paper distortion characteristics.

a. The mosaic should be identified with a title. Although definite rules cannot be outlined as to exactly what should be included in the title, it is important that it contain a name descriptive of the territory photographed. It may also contain any other information deemed appropriate, such as the representative fraction which indicates the average scale of the mosaic, an arrow indicating true north direction, and a statement as to the system of control used in the preparation of the mosaic.

b. Further information regarding data to be placed on a mosaic can be obtained from AR 300–15 and FM 30–21.

54. Reproducing mosaic.—It is often required that several mosaics be made of the same area. The usual procedure is to make one mosaic and then reproduce it photographically. The technique and photographic processes involved are thoroughly covered in TM 1–219, chapter 11.

55. Cause and correction of scale errors.—Errors in the scale of aerial negatives may be caused by camera tilt or tip at the instant of exposure, by rough terrain, or by variable airplane altitude.

a. Sloping terrain will cause the same type of scale distortion as camera tilt or tip; that is, the scale of the photograph will vary from one side to the other. Distortion of this type can be corrected easily during restitution by tilting the easel of the printer in a direction opposite that of the camera tilt or ground slope. The lens axis should remain perpendicular to the easel. If the scale errors are caused by rough terrain, it is sometimes necessary that the negative be printed in sections. The result may be several such sections, which, when mosaiced together, will form a mosaic of the area of uniform scale.

b. A change of flying altitude over the terrain will cause the entire negative to be out of scale in respect to the average scale of the mosaic. It is then necessary that the entire scale of the negative be altered. This simply involves changing the scale of the projection print in respect to the scale of the negative. Printing of this type is called "ratio work."

CHAPTER 5

UNITED STATES MILITARY GRID SYSTEM

Paragraph
Use of grid 56
Construction of grid 57

56. Use of grid.—It is a comparatively simple matter to locate positions on a map projection by means of geographic coordinates, but distances and directions between positions cannot be quickly ascertained. In order to do this, it is necessary first to determine the value in feet or yards of the minutes or seconds of latitude and longitude at or near the location in question. When this value is found, the distance north and south, and east and west can be found by application of a geometrical formula (the square of the hypotenuse of a right-angle triangle is equal to the sum of the squares of the other two sides). To determine an actual ground measurement along a meridian or parallel, personnel making the computations must have tables giving the value in feet of 1 second of latitude and longitude. It is far better to use a projection which in itself will contain all the necessary data. The grid system, which is simply a network of equal squares carefully drawn on the map or mosaic in their true relationship to the map projection, has been devised. East-west and north-south distances between locations can be quickly ascertained by counting the squares between them. The distance between two points which are not on the same meridian or parallel can then be computed without the aid of tables by squaring the north-south and east-west distances, adding them together and extracting the square root of this sum. The use of the grid is almost purely military, one of its chief functions being artillery fire control.

57. Construction of grid.—The standard size of the grid adopted by the military is the 1,000- and 5,000-yard square. Tables for its construction in relationship to a polyconic projection may be found in Coast and Geodetic Survey Special Publication No. 59, entitled Grid System for Progressive Maps in the United States. The tables of this publication are essential to the construction of the grid network. A thorough explanation of the grid system and directions as to the construction of a grid are also contained therein, and a further discussion here is not considered necessary.

CHAPTER 6

AERIAL CINEMATOGRAPHY

Paragraphs
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SECTION I

MECHANICAL ASPECTS OF CINEMATOGRAPHY

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58. General.—Aerial cinematography involves the making of pictures with motion picture cameras from airplanes in flight. A motion picture camera is a camera capable of making accurately spaced exposures at regular time intervals along a roll of film.

59. How a motion picture camera works.—Figure 10 shows the essential parts of a motion picture camera. Note that the film passes over two sprocket wheels and is held in place by tension rollers. After the film has passed over the first wheel, it is drawn through the film gate before it reaches the second sprocket wheel. The gate has tension plates which guide the film and exert sufficient tension or pressure on the film to prevent its free passage through the gate except by force. The film feeder arm works as an eccentric, the action of which causes the arm to be raised from and lowered to the film. This action, since it is eccentric, will also cause the arm to raise and lower at different places along the plane in which the film is held. Film to be used in motion picture cameras has evenly spaced perforations along its two edges. The action of the film feeder arm will pull the film through the film gate by means of these perforations. The result is an intermittent movement or passage of the film through the gate. The tension on the film in passing through the gate is such that when the feeder arm sprocket releases the film it will immediately stop. The film is exposed during the interim required for the feeder sprocket arm again to engage the film sprocket hole.

60. Theory of the moving picture.—If a few adjoining pictures of a motion picture film of a moving object were examined, the first impression would probably be that the pictures of the series were exactly alike. Closer examination would reveal the fact that each picture was just a little different. For example, if the strip contains a picture of a man raising his arm, close examination of the strip would reveal that with each subsequent exposure the arm was just a little higher. This would continue until the arm reaches the intended height. It is a well-known fact that the mind retains an image impression for a short period of time after the image has actually disappeared. This simple fact makes motion picture photography both practical and possible. Experience has shown that, if 16 pictures evenly spaced over a period of 1 second of time can be seen, the mind impression of the pictures will blend or overlap each other with the result that the pictures thus viewed will appear to move. If less than 16 pictures per second are made, the mind of the observer begins to

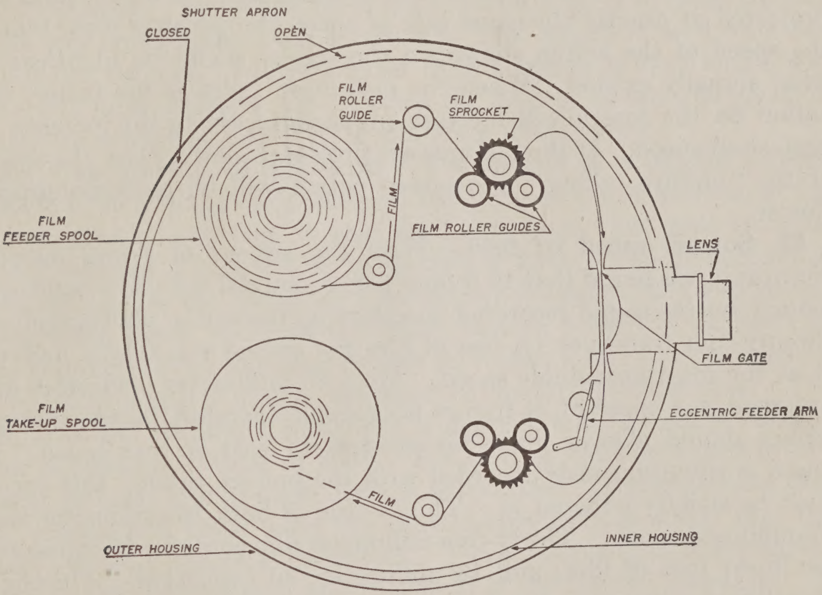
SHUTTER APRON
CLOSED
OPEN
FILM ROLLER GUIDE
FILM SPROCKET
FILM
FILM ROLLER GUIDES
FILM FEEDER SPOOL
LENS
FILM GATE
FILM TAKE-UP SPOOL
ECCENTRIC FEEDER ARM
FILM
INNER HOUSING
OUTER HOUSING

FIGURE 10.—General mechanism—motion-picture camera.

separate them with the result that the slight changes between adjoining pictures are recorded by the mind and the action of the picture appears "jumpy."

61. Motion picture projector.—The motion picture projector serves as the medium for viewing the pictures exposed by the camera. As its name implies, it projects. The images of the pictures are projected on a wall or specially built projection screen in their proper sequence of original exposure. As an aid to visibility the screen should be light in color and the room should be darkened. If the pictures are projected at exactly the same rate of speed the pictures were taken, the speed of the action shown on the screen would be identical to what actually existed. When the projection speed is the faster, the action on the screen will increase proportionately to the increase in projection speed. If the pictures are projected slower than the speed of the "picture taking," the screen action will be correspondingly slower.

62. Sound speed of film.—With the advent of sound motion pictures it was found that 16 frames per second did not allow sufficient footage for the sound recording necessary to the action photographed. Twenty-four frames or 1½ feet of film per second was finally arrived at as the most acceptable speed. Most 35-millimeter projectors are governed to a speed of 24 frames per second; therefore the cinematographer should always make his pictures at least at that speed. If sound is simultaneously recorded with the picture taking, this speed must be strictly adhered to. This is true of both 16-millimeter and 35-millimeter work. Thirty-five-millimeter film contains 16 exposures per linear foot of film; and 16 millimeter, 40 exposures. Although 16-millimeter cameras can be used in aerial cinematography, most work is accomplished with 35-millimeter equipment.

63. Camera speed for aerial work.—In aerial cinematographic work the camera moves past the subject to be photographed. The faster the airplane travels, with its consequent movement of image on the camera focal plane, the faster must be the shutter speed used in order to "stop movement" on the film. The work should never be done at less than 24 frames or pictures per second. If the airplane is flying at a low altitude and directly past the subject, this speed must be increased. As the altitude or distance from the subject increases, the number of frames per second decreases; and vice versa. Usually a minimum of 48 frames per second is necessary when the airplane travel is directly past the subject, and 24 frames when the objective is circled. It should be remembered that any above normal camera speed will cause the projector (governed to 24 frames) to project the image for a longer time on the screen. This is in most cases a desirable factor, since a smoother image results and the longer time permits a more detailed study.

64. Lenses used in aerial work.—The greater the distance of the objective, the longer may be the focal length of the lens used. A 2-inch lens used with a 35-millimeter film is equal in coverage to a 1-inch lens used with 16-millimeter film. Since 35-millimeter cameras are most generally used, the following discussion will allude chiefly to those cameras. The vibration of the airplane is likely to cause trouble when any lens greater than 4 inches in focal length is used on a 35-millimeter camera. Lenses greater than 2 inches in focal length are generally unsatisfactory except when the subject distance is great or when the subject is circled at a minimum flying speed.

65. Calculation of exposure.—The shutter of a motion picture camera is, in effect, a focal plane shutter, but the actual location of the shutter may or may not be near the focal plane. On most 16-millimeter cameras a rotary disk is commonly used. The 35-millimeter cameras used in the Army Air Forces are equipped with a rubberized cloth band which encircles the entire camera housing. Shutters of this type are not a solid band or disk throughout, but have an opening or aperture which is used as the means of making the exposure. The length of the opening is measured in degrees, and the entire band or disk constitutes a total of 360°. The shutter opening varies in different cameras and in some cases is adjustable. It is important that the cameraman know what the shutter opening is in order that the exact exposure time can be known. The exposure time is dependent upon the shutter opening and the speed of the camera operation. A very simple formula may be used to determine the shutter speed (or exposure time): Camera speed or frames per second × 360° (maximum shutter opening) divided by the shutter opening used = the reciprocal of the exposure time. Solve as per example. Given:

(1) A shutter opening of 230°.

(2) Camera speed of 24 frames per second.

Find actual exposure time.

$$24\times 360\div 230=37, \text{ or reciprocal of exposure time.}$$

$$\therefore \text{ the exposure time is } 1/37 \text{ of } 1 \text{ second.}$$

66. Effect of shutter opening on adjacent images.—At a given camera speed a reduction in the size of the shutter opening increases the interval of time between adjacent exposures. The pictures of the strip will therefore differ more in comparison with each other than they would when a larger opening is used. The use of a small opening should be avoided, especially at the slower camera speeds, as it will tend to produce images that, when projected, will be too widely separated in their recorded action. The result will be a picture which is not smooth in action. In order to see a series of still pictures as a moving picture, the less the time interval between exposures, the smoother will be the action as seen on the projection screen. In aerial work the most common shutter opening used is 230°. Any opening of less than 180° is to be avoided.

67. Use of filters.—The same rules regarding the use of filters in ordinary photography apply to cinematography. Generally speaking, filters are neither necessary nor desirable in low altitude work. For information relative to the proper selection of a particular filter, see TM 1–219.

68. Camera mount.—Although some hand-held motion picture cameras can be quite satisfactorily used in this manner in aerial cinematography, a camera mount is generally advisable. Camera attachments are available for securing the camera to the standard machine-gun tourelle. Floor mounts to be used for "shooting" through a door, window, or the airplane floor may be constructed at the discretion of the cameraman. In constructing mounts for this purpose, an effort should be made to reduce the transmission of the vibration of the airplane to the camera by rubber buffers at all places where camera or mount makes contact with the airplane.

69. Operation of camera.—The camera may be operated manually by means of a crank, operated by a spring mechanism, or driven by a motor. The motor drive is the most satisfactory method of operation for aerial work, because it permits remote control by the pilot. When so used, the camera is mounted in a stabilized position, and the pilot directs the camera by maneuvers of the ship.

70. Maintenance of records.—A record should be kept of all pertinent data and should be delivered to the laboratory. This record will assist both the laboratory crew and the cameraman on future missions, and will also assist in identification of the subject.

SECTION II

USE OF CINEMATOGRAPHY

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71. Advantages of cinematography.—The chief advantage of cinematography as compared to a still picture is its presentation of a living picture. Although its distinctive uses are somewhat limited, a living picture portrays a more complete story than a still picture.

72. Tactical employment of motion pictures.—*a*. Cinematography may be used to assess the extent of bomb damage or machine-gun fire. Such pictures may be taken at the time of occurrence, immediately afterward, or at a later date.

b. Troop movements and general enemy activities can be filmed for study by the various commands of the opposing force. Information as to maneuverability, strength, position, and general operative facilities of the enemy can be obtained from such pictures.

c. Cinematography may be employed to advantage in a study of enemy strategy in attack and the effectiveness of such strategy. It is equally applicable to ground or aerial assault.

73. Camera gun.—The camera gun is a modified form of motion picture camera, the essential camera parts being mounted in a machine-gun framework. The main use of this type of camera is in the training of pilots and aerial gunners for aerial combat. By means of the camera gun a photographic scoring or record is made of the result of each shot (exposure). The skill thus developed in the use of a camera gun is substantially of the same value as that obtained in the use of a machine gun employing live cartridges. (For a complete description of camera gun types, along with operation and maintenance, see TM 1-505.)

APPENDIX I

SCALE CHARTS

Altitude in feet	6⅜-in. lens 2 × alt. =scale	6-in. lens 1.882 × alt. =scale	7-in. lens 1.714 × alt. =scale	8-in. lens 1.5 × alt. =scale	8¼-in. lens 1.454 × alt. =scale	10-in. lens 1.2 × alt. =scale	12-in. lens 1.0 × alt. =scale*
1,000	2, 000	1, 882	1, 714	1, 500	1, 454	1, 200	1, 000
2,000	4, 000	3, 764	3, 428	3, 000	2, 908	2, 400	2, 000
3,000	6, 000	5, 646	5, 142	4, 500	4, 362	3, 600	3, 000
4,000	8, 000	7, 528	6, 856	6, 000	5, 816	4, 800	4, 000
5,000	10, 000	9, 410	8, 570	7, 500	7, 270	6, 000	5, 000
6,000	12, 000	11, 292	10, 285	9, 000	8, 724	7, 200	6, 000
7,000	14, 000	13, 174	12, 000	10, 500	10, 178	8, 400	7, 000
8,000	16, 000	15, 056	13, 713	12, 000	11, 632	9, 600	8, 000
9,000	18, 000	16, 938	15, 428	13, 500	13, 086	10, 800	9, 000
10,000	20, 000	18, 882	17, 142	15, 000	14, 545	12, 000	10, 000
11,000	22, 000	20, 702	18, 856	16, 500	15, 994	13, 200	11, 000
12,000	24, 000	22, 584	20, 570	18, 000	17, 448	14, 400	12, 000
13,000	26, 000	24, 466	22, 284	19, 500	18, 902	15, 600	13, 000
14,000	28, 000	26, 348	24, 000	21, 000	20, 356	16, 800	14, 000
15,000	30, 000	28, 230	25, 713	22, 500	21, 810	18, 000	15, 000
16,000	32, 000	30, 112	27, 427	24, 000	23, 264	19, 200	16, 000
17,000	34, 000	31, 994	29, 141	25, 500	24, 718	20, 400	17, 000
18,000	36, 000	33, 876	30, 855	27, 000	26, 172	21, 600	18, 000
19,000	38, 000	35, 758	32, 570	28, 500	27, 626	22, 800	19, 000
20,000	40, 000	37, 640	34, 284	30, 000	29, 080	24, 000	20, 000
21,000	42, 000	39, 522	35, 998	31, 500	30, 534	25, 200	21, 000
22,000	44, 000	41, 404	37, 712	33, 000	31, 988	26, 400	22, 000
23,000	46, 000	43, 286	39, 426	34, 500	33, 442	27, 600	23, 000
24,000	48, 000	45, 168	41, 141	36, 000	34, 876	28, 800	24, 000
25,000	50, 000	47, 050	42, 855	37, 500	36, 350	30, 000	25, 000
26,000	52, 000	48, 932	44, 542	39, 000	37, 804	31, 200	26, 000
27,000	54, 000	50, 814	46, 283	40, 500	39, 258	32, 400	27, 000
28,000	56, 000	52, 696	47, 997	42, 000	40, 712	33, 600	28, 000
29,000	58, 000	54, 578	49, 712	43, 500	42, 166	34, 800	29, 000
30,000	60, 000	56, 460	51, 420	45, 000	43, 620	36, 000	30, 000
31,000	62, 000	58, 342	53, 140	46, 500	44, 074	37, 200	31, 000
32,000	64, 000	60, 224	54, 854	48, 000	46, 528	38, 400	32, 000
33,000	66, 000	62, 106	56, 568	49, 500	47, 982	39, 600	33, 000
34,000	68, 000	63, 988	58, 282	51, 000	49, 436	40, 800	34, 000
35,000	70, 000	65, 870	60, 000	52, 500	50, 890	42, 000	35, 000
36,000	72, 000	67, 752	61, 711	54, 000	52, 344	43, 200	36, 000
37,000	74, 000	69, 634	63, 425	55, 500	53, 798	44, 400	37, 000
38,000	76, 000	71, 516	65, 139	57, 000	55, 252	45, 600	38, 000
39,000	78, 000	73, 398	66, 853	58, 500	56, 706	46, 800	39, 000
40,000	80, 000	75, 280	68, 568	60, 000	58, 160	48, 000	40, 000

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*When the 12-inch lens is used, the altitude exactly matches the scale of the photograph.

SCALE CHARTS—Continued

Altitude in feet	13½-in. lens 0.888 × alt. =scale	14-in. lens 0.857 × alt. =scale	20-in. lens 0.6 × alt. =scale	24-in. lens 0.5 × alt. =scale	40-in. lens 0.3 × alt. =scale	48-in. lens 0.25 × alt. =scale	60-in. lens 0.2 × alt. =scale
1,000	888	857	600	500	300	250	200
2,000	1, 776	1, 714	1, 200	1, 000	600	500	400
3,000	2, 664	2, 571	1, 800	1, 500	900	750	600
4,000	3, 552	3, 428	2, 400	2, 000	1, 200	1, 000	800
5,000	4, 440	4, 285	3, 000	2, 500	1, 500	1, 250	1, 000
6,000	5, 328	5, 142	3, 600	3, 000	1, 800	1, 500	1, 200
7,000	6, 216	6, 000	4, 200	3, 500	2, 100	1, 750	1, 400
8,000	7, 104	6, 856	4, 800	4, 000	2, 400	2, 000	1, 600
9,000	7, 992	7, 713	5, 400	4, 500	2, 700	2, 250	1, 800
10,000	8, 888	8, 571	6, 000	5, 000	3, 000	2, 500	2, 000
11,000	9, 768	9, 428	6, 600	5, 500	3, 300	2, 750	2, 200
12,000	10, 656	10, 285	7, 200	6, 000	3, 600	3, 000	2, 400
13,000	11, 544	11, 142	7, 800	6, 500	3, 900	3, 250	2, 600
14,000	12, 432	12, 000	8, 400	7, 000	4, 200	3, 500	2, 800
15,000	13, 320	12, 856	9, 000	7, 500	4, 500	3, 750	3, 000
16,000	14, 208	13, 713	9, 600	8, 000	4, 800	4, 000	3, 200
17,000	15, 096	14, 570	10, 200	8, 500	5, 100	4, 250	3, 400
18,000	15, 984	15, 427	10, 800	9, 000	5, 400	4, 500	3, 600
19,000	16, 872	16, 285	11, 400	9, 500	5, 700	4, 750	3, 800
20,000	17, 760	17, 142	12, 000	10, 000	6, 000	5, 000	4, 000
21,000	18, 648	18, 000	12, 600	10, 500	6, 300	5, 250	4, 200
22,000	19, 536	18, 856	13, 200	11, 000	6, 600	5, 500	4, 400
23,000	20, 424	19, 713	13, 800	11, 500	6, 900	5, 750	4, 600
24,000	21, 312	20, 570	14, 400	12, 000	7, 200	6, 000	4, 800
25,000	22, 200	21, 427	15, 000	12, 500	7, 500	6, 250	5, 000
26,000	23, 088	22, 284	15, 600	13, 000	7, 800	6, 500	5, 200
27,000	23, 976	23, 141	16, 200	13, 500	8, 100	6, 750	5, 400
28,000	24, 864	24, 000	16, 800	14, 000	8, 400	7, 000	5, 600
29,000	25, 752	24, 856	17, 400	14, 500	8, 700	7, 250	5, 800
30,000	26, 640	25, 713	18, 000	15, 000	9, 000	7, 500	6, 000
31,000	27, 528	26, 570	18, 600	15, 500	9, 300	7, 750	6, 200
32,000	28, 416	27, 427	19, 200	16, 000	9, 600	8, 000	6, 400
33,000	29, 304	29, 284	19, 800	16, 500	9, 900	8, 250	6, 600
34,000	30, 192	29, 141	20, 400	17, 000	10, 200	8, 500	6, 800
35,000	31, 080	30, 000	21, 000	17, 500	10, 500	8, 750	7, 000
36,000	31, 968	30, 855	21, 600	18, 000	10, 800	9, 000	7, 200
37,000	32, 856	31, 712	22, 200	18, 500	11, 100	9, 250	7, 400
38,000	33, 744	32, 570	22, 800	19, 000	11, 400	9, 500	7, 600
39,000	34, 612	33, 427	23, 400	19, 500	11, 700	9, 750	7, 800
40,000	35, 520	34, 284	24, 000	20, 000	12, 000	10, 000	8, 000

APPENDIX II

TABLES OF COVERAGE

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*

8¼-INCH FOCAL LENGTH LENS; 7- BY 9-INCH FOCAL PLANE

Focal length	8¼ inches					
Plate size	7 by 9 inches		Photographs per mile, 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet				Map scale 1:48,000	Map scale 1:62,500
	Length	Width				
1,000	848	1, 090	15. 57	1, 454	0. 164	0. 125
1,500	1, 274	1, 636	10. 38	2, 440	. 246	. 190
2,000	1, 696	2, 180	7. 78	2, 910	. 338	. 253
2,500	2, 120	2, 720	6. 22	3, 640	. 408	. 316
3,000	2, 544	3, 270	5. 18	4, 360	. 490	. 379
3,500	2, 641	3, 820	4. 44	5, 090	. 573	. 443
4,000	3, 392	4, 360	3. 89	5, 820	. 654	. 505
4,500	3, 820	4, 910	3. 46	6, 550	. 737	. 579
5,000	4, 240	5, 450	3. 11	7, 270	. 818	. 632
5,500	4, 660	6, 000	2. 93	8, 000	. 900	. 696
6,000	5, 090	6, 540	2. 59	8, 730	. 981	. 758
6,500	5, 520	7, 080	2. 40	9, 450	1. 062	. 822
7,000	5, 940	7, 630	2. 22	10, 280	1. 145	. 885
7,500	6, 360	8, 160	2. 07	10, 900	1. 225	. 948
8,000	6, 780	8, 720	1. 95	11, 630	1. 310	1. 012
8,500	7, 220	9, 260	1. 84	12, 370	1. 390	1. 064
9,000	7, 630	9, 820	1. 73	13, 100	1. 475	1. 114
9,500	8, 060	10, 370	1. 64	13, 820	1. 505	1. 203
10,000	8, 484	10, 900	1. 56	14, 540	1. 638	1. 265
10,500	8, 920	11, 430	1. 48	15, 270	1. 716	1. 328
11,000	9, 330	11, 900	1. 42	16, 000	1. 785	1. 380
11,500	9, 750	12, 530	1. 36	16, 730	1. 880	1. 455
12,000	10, 190	13, 080	1. 30	17, 450	1. 960	1. 515
12,500	10, 620	13, 630	1. 25	18, 180	2. 05	1. 581
13,000	11, 030	14, 170	1. 20	18, 900	2. 12	1. 644
13,500	11, 460	14, 710	1. 16	19, 630	2. 21	1. 718
14,000	11, 870	15, 270	1. 13	20, 360	2. 29	1. 770
14,500	12, 300	15, 800	1. 08	21, 090	2. 37	1. 832
15,000	12, 720	16, 350	1. 04	21, 810	2. 45	1. 896
15,500	13, 250	16, 900	1. 01	22, 540	2. 54	1. 960
16,000	13, 580	17, 430	. 98	23, 270	2. 62	2. 02
16,500	14, 000	17, 970	. 95	24, 000	2. 70	2. 08
17,000	14, 430	18, 530	. 92	24, 750	2. 78	2. 15
17,500	14, 850	19, 070	. 89	25, 450	2. 86	2. 21
18,000	15, 380	19, 630	. 87	26, 200	2. 94	2. 28

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

8¼-INCH FOCAL LENGTH LENS; 7- BY 9-INCH FOCAL PLANE—Continued

Focal length	8¼ inches					
Plate size	7 by 9 inches		Photographs per mile, 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet				Map scale 1:48,000	Map scale 1:62,500
	Length	Width				
18,500	15, 700	20, 150	0. 84	26, 930	3. 02	2. 34
19,000	16, 120	20, 710	. 82	27, 640	3. 10	2. 40
19,500	16, 550	21, 050	. 80	27, 360	3. 16	2. 45
20,000	16, 960	21, 800	. 78	29, 080	3. 27	2. 53
20,500	17, 390	22, 350	. 76	29, 810	3. 35	2. 59
21,000	17, 800	22, 900	. 74	30, 550	3. 44	2. 66
21,500	18, 240	23, 420	. 73	31, 300	3. 51	2. 70
22,000	18, 660	23, 980	. 71	32, 000	3. 60	2. 78
22,500	19, 190	24, 520	. 69	32, 740	3. 67	2. 84
23,000	19, 510	25, 070	. 68	33, 460	3. 76	2. 91
23,500	19, 950	25, 620	. 67	34, 200	3. 85	2. 98
24,000	20, 360	26, 170	. 65	34, 900	3. 92	3. 04
24,500	20, 830	26, 750	. 64	35, 700	4. 01	3. 09
25,000	21, 240	27, 250	. 63	36, 380	4. 12	3. 16
25,500	21, 650	27, 800	. 61	37, 100	4. 17	3. 23
26,000	22, 100	28, 340	. 60	37, 820	4. 24	3. 29
26,500	22, 500	28, 900	. 59	38, 550	4. 34	3. 35
27,000	22, 930	29, 450	. 58	39, 270	4. 42	3. 42
27,500	23, 350	29, 990	. 57	40, 000	4. 50	3. 48
28,000	23, 770	30, 510	. 56	40, 750	4. 58	3. 54
28,500	24, 200	31, 040	. 55	41, 400	4. 66	3. 60
29,000	24, 600	31, 610	. 54	42, 200	4. 75	3. 67
29,500	25, 080	32, 170	. 53	42, 900	4. 82	3. 73
30,000	25, 480	32, 760	. 52	43, 650	4. 91	3. 81

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

8¼-INCH FOCAL LENGTH LENS; 9- BY 9-INCH FOCAL PLANE

Focal length	8¼ inches				
Plate size	9 by 9 inches		Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet, length and width	Photographs per mile 60 percent overlap		Map scale 1:48, 000	Map scale 1:62, 500
1,000	1, 090	12. 12	1, 454	0. 16	0. 12
1,500	1, 636	8. 08	2, 440	. 24	. 19
2,000	2, 180	6. 06	2, 910	. 33	. 25
2,500	2, 720	4. 84	3, 640	. 40	. 31
3,000	3, 270	4. 04	4, 360	. 49	. 37
3,500	3, 820	3. 47	5, 090	. 57	. 44
4,000	4, 360	3. 03	5, 820	. 65	. 50
4,500	4, 910	2. 69	6, 550	. 73	. 57
5,000	5, 450	2. 43	7, 270	. 81	. 63
5,500	6, 000	2. 22	8, 000	. 90	. 69
6,000	6, 540	2. 02	8, 730	. 98	. 75
6,500	7, 080	1. 87	9, 450	1. 06	. 82
7,000	7, 630	1. 74	10, 280	1. 14	. 88
7,500	8, 160	1. 62	10, 900	1. 22	. 94
8,000	8, 720	1. 52	11, 630	1. 31	1. 01
8,500	9, 260	1. 43	12, 370	1. 39	1. 06
9,000	9, 820	1. 35	13, 100	1. 47	1. 11
9,500	10, 370	1. 28	13, 820	1. 50	1. 20
10,000	10, 900	1. 22	14, 540	1. 63	1. 26
10,500	11, 430	1. 16	15, 270	1. 71	1. 32
11,000	11, 900	1. 10	16, 000	1. 78	1. 38
11,500	12, 530	1. 06	16, 730	1. 88	1. 45
12,000	13, 080	1. 01	17, 450	1. 96	1. 51
12,500	13, 630	. 97	18, 180	2. 05	1. 58
13,000	14, 170	. 94	18, 900	2. 12	1. 64
13,500	14, 710	. 90	19, 630	2. 21	1. 71
14,000	15, 270	. 87	20, 360	2. 29	1. 77
14,500	15, 800	. 84	21, 090	2. 37	1. 83
15,000	16, 350	. 81	21, 810	2. 45	1. 89
15,500	16, 900	. 79	22, 540	2. 54	1. 96
16,000	17, 430	. 76	23, 270	2. 62	2. 02
16,500	17, 970	. 74	24, 000	2. 70	2. 08
17,000	18, 530	. 72	24, 750	2. 78	2. 15
17,500	19, 070	. 70	25, 450	2. 86	2. 21
18,000	19, 630	. 68	26, 200	2. 94	2. 28
18,500	20, 150	. 66	26, 930	3. 02	2. 34

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

8¼-INCH FOCAL LENGTH LENS; 9- BY 9-INCH FOCAL PLANE—Continued

Focal length	8¼ inches				
Plate size	9 by 9 inches		Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet, length and width	Photographs per mile 60 percent overlap		Map scale 1:48, 000	Map scale 1:62, 500
19,000	20, 710	0. 64	27, 640	3. 10	2. 40
19,500	21, 050	. 62	27, 360	3. 16	2. 45
20,000	21, 800	. 61	29, 080	3. 27	2. 53
20,500	22, 350	. 59	29, 810	3. 35	2. 59
21,000	22, 900	. 58	30, 550	3. 44	2. 66
21,500	23, 420	. 57	31, 300	3. 51	2. 70
22,000	23, 980	. 55	32, 000	3. 60	2. 78
22,500	24, 520	. 54	32, 740	3. 67	2. 84
23,000	25, 070	. 53	33, 460	3. 76	2. 91
23,500	25, 620	. 52	34, 200	3. 85	2. 98
24,000	26, 170	. 51	34, 900	3. 92	3. 04
24,500	26, 750	. 50	35, 700	4. 01	3. 09
25,000	27, 250	. 49	36, 380	4. 12	3. 16
25,500	27, 800	. 48	37, 100	4. 17	3. 23
26,000	28, 340	. 47	37, 820	4. 24	3. 29
26,500	28, 900	. 46	38, 550	4. 35	3. 35
27,000	29, 450	. 45	39, 270	4. 42	3. 42
27,500	29, 990	. 44	40, 000	4. 50	3. 48
28,000	30, 510	. 44	40, 750	4. 58	3. 54
28,500	31, 040	. 43	41, 400	4. 66	3. 60
29,000	31, 610	. 42	42, 200	4. 75	3. 67
29,500	32, 170	. 41	42, 900	4. 82	3. 73
30,000	32, 760	. 41	43, 650	4. 91	3. 81

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

12-INCH FOCAL LENGTH LENS; 7- BY 9-INCH FOCAL PLANE

Focal length	12 inches					
Plate size	7 by 9 inches		Photographs per mile[2] 60 percent overlap	Scale R. F.=1:[3]	Flight line separation (inches)[4]	
Altitude in feet	Coverage in feet[1]				Map scale 1:48,000	Map scale 1:62,000
	Length	Width				
1,000	583	750	22. 5	1, 000	0. 11	0. 09
1,500	876	1, 125	15. 1	1, 500	. 17	. 13
2,000	1, 167	1, 500	11. 3	2, 000	. 23	. 17
2,500	1, 460	1, 875	9. 04	2, 500	. 28	. 22
3,000	1, 750	2, 250	7. 54	3, 000	. 34	. 26
3,500	2, 042	2, 625	6. 46	3, 500	. 39	. 30
4,000	2, 333	3, 000	5. 66	4, 000	. 45	. 34
4,500	2, 625	3, 375	5. 03	4, 500	. 51	. 39
5,000	2, 918	3, 750	4. 52	5, 000	. 56	. 43
5,500	3, 210	4, 125	4. 11	5, 500	. 62	. 48
6,000	3, 500	4, 500	3. 77	6, 000	. 68	. 52
6,500	3, 800	4, 875	3. 47	6, 500	. 73	. 56
7,000	4, 080	5, 250	3. 23	7, 000	. 79	. 60
7,500	4, 380	5, 625	3. 01	7, 500	. 84	. 65
8,000	4, 670	6, 000	2. 83	8, 000	. 90	. 69
8,500	4, 960	6, 375	2. 66	8, 500	. 96	. 73
9,000	5, 250	6, 750	2. 51	9, 000	1. 01	. 78
9,500	5, 540	7, 125	2. 38	9, 500	1. 07	. 82
10,000	5, 830	7, 500	2. 26	10, 000	1. 13	. 86
10,500	6, 120	7, 875	2. 15	10, 500	1. 18	. 91
11,000	6, 420	8, 250	2. 06	11, 000	1. 24	. 95
11,500	6, 710	8, 625	1. 97	11, 500	1. 29	. 99
12,000	7, 000	9, 000	1. 88	12, 000	1. 35	1. 04
12,500	7, 300	9, 375	1. 81	12, 500	1. 41	1. 08
13,000	7, 590	9, 750	1. 74	13, 000	1. 46	1. 12
13,500	7, 870	10, 125	1. 68	13, 500	1. 52	1. 17
14,000	8, 170	10, 500	1. 61	14, 000	1. 58	1. 21

[1] Coverage with 6-inch lens=coverage with 12-inch lens×2;

$$\text{coverage with 24-inch lens}=\frac{\text{coverage with 12-inch lens}}{2}.$$

[2] Photographs per mile with 6-inch lens $=\frac{\text{photographs per mile with 12-inch lens}}{2}$; photographs per mile with 24-inch lens=photographs per mile with 12-inch lens×2.

[3] Scale of photograph given by 6-inch lens $=\frac{\text{scale given by 12-inch lens}}{2}$; scale of photograph given by 24-inch lens=scale given by 12-inch lens×2.

[4] Flight line separation given by 6-inch lens=flight line separation given by 12-inch lens×2; flight line separation given by 24-inch lens $=\frac{\text{flight line separation given by 12-inch lens}}{2}$.

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

12-INCH FOCAL LENGTH LENS; 7- BY 9-INCH FOCAL PLANE—Continued

Focal length	12 inches					
Plate size	7 by 9 inches		Photographs per mile 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet				Map scale 1:48,000	Map scale 1:62,000
	Length	Width				
14,500	8, 460	10, 875	1. 56	14, 500	1. 63	1. 25
15,000	8, 750	11, 250	1. 51	15, 000	1. 69	1. 29
15,500	9, 050	11, 625	1. 46	15, 500	1. 74	1. 34
16,000	9, 340	12, 000	1. 41	16, 000	1. 80	1. 38
16,500	9, 640	12, 375	1. 37	16, 500	1. 86	1. 42
17,000	9, 930	12, 750	1. 33	17, 000	1. 91	1. 47
17,500	10, 220	13, 125	1. 29	17, 500	1. 97	1. 51
18,000	10, 510	13, 500	1. 25	18, 000	2. 03	1. 55
18,500	10, 800	13, 875	1. 22	18, 500	2. 08	1. 60
19,000	11, 100	14, 250	1. 19	19, 000	2. 14	1. 64
19,500	11, 390	14, 625	1. 16	19, 500	2. 19	1. 68
20,000	11, 680	15, 000	1. 13	20, 000	2. 25	1. 73
20,500	11, 970	15, 375	1. 10	20, 500	2. 31	1. 77
21,000	12, 260	15, 750	1. 08	21, 000	2. 36	1. 81
21,500	12, 560	16, 125	1. 05	21, 500	2. 41	1. 86
22,000	12, 850	16, 500	1. 03	22, 000	2. 47	1. 90
22,500	13, 140	16, 875	1. 00	22, 500	2. 53	1. 94
23,000	13, 430	17, 250	. 98	23, 000	2. 59	1. 99
23,500	13, 720	17, 625	. 96	23, 500	2. 64	2. 03
24,000	14, 020	18, 000	. 94	24, 000	2. 70	2. 07
24,500	14, 310	18, 375	. 92	24, 500	2. 75	2. 12
25,000	14, 600	18, 750	. 90	25, 000	2. 81	2. 16
25,500	14, 890	19, 125	. 89	25, 500	2. 87	2. 20
26,000	15, 180	19, 500	. 87	26, 000	2. 92	2. 25
26,500	15, 480	19, 875	. 85	26, 500	2. 98	2. 29
27,000	15, 770	20, 250	. 84	27, 000	3. 04	2. 33
27,500	16, 060	20, 625	. 82	27, 500	3. 09	2. 37
28,000	16, 350	21, 000	. 81	28, 000	3. 15	2. 42
28,500	16, 640	21, 375	. 79	28, 500	3. 21	2. 46
29,000	16, 940	21, 750	. 78	29, 000	3. 26	2. 50
29,500	17, 230	22, 125	. 77	29, 500	3. 32	2. 55
30,000	17, 520	22, 500	. 75	30, 000	3. 37	2. 59

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

12-INCH FOCAL LENGTH LENS; 9- BY 9-INCH FOCAL PLANE (ALSO 6-INCH AND 24-INCH FOCAL LENGTH)

Focal length	12 inches				
Altitude in feet	Coverage in feet, length and width [1]	Photographs per mile 60 percent overlap [2]	Scale R. F.= 1: [3]	Flight line separation (inches) [4]	
				Map scale 1:48,000	Map scale 1:62,500
1,000	750	17. 60	1, 000	0. 11	0. 08
1,500	1, 125	11. 73	1, 500	. 16	. 12
2,000	1, 500	8. 80	2, 000	. 22	. 17
2,500	1, 875	7. 04	2, 500	. 28	. 21
3,000	2, 250	5. 87	3, 000	. 33	. 25
3,500	2, 625	5. 03	3, 500	. 39	. 30
4,000	3, 000	4. 40	4, 000	. 45	. 34
4,500	3, 375	3. 91	4, 500	. 50	. 38
5,000	3, 750	3. 52	5, 000	. 56	. 43
5,500	4, 125	3. 20	5, 500	. 61	. 47
6,000	4, 500	2. 93	6, 000	. 67	. 51
6,500	4, 875	2. 71	6, 500	. 73	. 56
7,000	5, 250	2. 51	7, 000	. 78	. 60
7,500	5, 625	2. 35	7, 500	. 84	. 64
8,000	6, 000	2. 20	8, 000	. 90	. 69
8,500	6, 375	2. 07	8, 500	. 95	. 73
9,000	6, 750	1. 95	9, 000	1. 01	. 77
9,500	7, 125	1. 85	9, 500	1. 06	. 82
10,000	7, 500	1. 76	10, 000	1. 12	. 86
10,500	7, 875	1. 68	10, 500	1. 18	. 90
11,000	8, 250	1. 60	11, 000	1. 23	. 95
11,500	8, 625	1. 53	11, 500	1. 29	. 99
12,000	9, 000	1. 47	12, 000	1. 35	1. 04
12,500	9, 375	1. 41	12, 500	1. 40	1. 08
13,000	9, 750	1. 35	13, 000	1. 46	1. 12
13,500	10, 125	1. 30	13, 500	1. 51	1. 17
14,000	10, 500	1. 26	14, 000	1. 57	1. 21
14,500	10, 875	1. 21	14, 500	1. 63	1. 25

See notes on page 68.

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

12-INCH FOCAL LENGTH LENS; 9- BY 9-INCH FOCAL PLANE (ALSO 6-INCH AND 24-INCH FOCAL LENGTH)—Continued

Focal length	12 inches				
Altitude in feet	Coverage in feet, length and width [1]	Photographs per mile 60 percent overlap [2]	Scale R. F.= 1: [3]	Flight line separation (inches) [4]	
				Map scale 1:48,000	Map scale 1:62,500
15,000	11, 250	1. 17	15, 000	1. 68	1. 29
15,500	11, 625	1. 13	15, 500	1. 74	1. 34
16,000	12, 000	1. 10	16, 000	1. 80	1. 38
16,500	12, 375	1. 07	16, 500	1. 85	1. 42
17,000	12, 750	1. 03	17, 000	1. 91	1. 47
17,500	13, 125	1. 00	17, 500	1. 96	1. 51
18,000	13, 500	. 98	18, 000	2. 02	1. 55
18,500	13, 875	. 95	18, 500	2. 08	1. 60
19,000	14, 250	. 93	19, 000	2. 13	1. 64
19,500	14, 625	. 90	19, 500	2. 19	1. 68
20,000	15, 000	. 88	20, 000	2. 25	1. 73
20,500	15, 375	. 86	20, 500	2. 30	1. 77
21,000	15, 750	. 84	21, 000	2. 36	1. 81
21,500	16, 125	. 82	21, 500	2. 41	1. 86
22,000	16, 500	. 80	22, 000	2. 47	1. 90
22,500	16, 875	. 78	22, 500	2. 53	1. 94
23,000	17, 250	. 76	23, 000	2. 58	1. 99
23,500	17, 625	. 75	23, 500	2. 64	2. 03
24,000	18, 000	. 73	24, 000	2. 70	2. 07
24,500	18, 375	. 72	24, 500	2. 75	2. 12
25,000	18, 750	. 70	25, 000	2. 81	2. 16
25,500	19, 125	. 69	25, 500	2. 86	2. 20
26,000	19, 500	. 68	26, 000	2. 92	2. 25
26,500	19, 875	. 66	26, 500	2. 98	2. 29
27,000	20, 250	. 65	27, 000	3. 03	2. 33
27,500	20, 625	. 64	27, 500	3. 09	2. 37
28,000	21, 000	. 63	28, 000	3. 15	2. 42
28,500	21, 375	. 62	28, 500	3. 20	2. 46
29,000	21, 750	. 61	29, 000	3. 26	2. 50
29,500	22, 125	. 60	29, 500	3. 31	2. 55
30,000	22, 500	. 59	30, 000	3. 37	2. 59

See notes on page 68.

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

13.5-INCH FOCAL LENGTH LENS; 7- BY 9-INCH FOCAL PLANE

Focal length	13. 5 inches					
Plate size	7 by 9 inches		Photographs per mile 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet				Map scale 1:48, 000	Map scale 1:62, 500
	Length	Width				
1,000	518	667	25. 50	889	0. 10	0. 08
1,500	777	1, 000	17. 00	1, 333	. 15	. 12
2,000	1, 036	1, 330	12. 80	1, 778	. 20	. 15
2,500	1, 300	1, 670	10. 20	2, 222	. 25	. 19
3,000	1, 550	2, 000	8. 50	2, 667	. 30	. 23
3,500	1, 820	2, 330	7. 28	3, 110	. 35	. 27
4,000	2, 070	2, 670	6. 38	3, 556	. 40	. 31
4,500	2, 330	3, 000	5. 66	4, 000	. 45	. 35
5,000	2, 590	3, 330	5. 10	4, 440	. 50	. 39
5,500	2, 850	3, 670	4. 64	4, 890	. 55	. 43
6,000	3, 110	4, 000	4. 25	5, 330	. 60	. 46
6,500	3, 370	4, 330	3. 92	5, 780	. 65	. 50
7,000	3, 630	4, 670	3. 64	6, 220	. 70	. 54
7,500	3, 890	5, 000	3. 40	6, 670	. 75	. 58
8,000	4, 140	5, 330	3. 19	7, 110	. 80	. 62
8,500	4, 400	5, 670	3. 00	7, 560	. 85	. 66
9,000	4, 660	6, 000	2. 83	8, 000	. 90	. 70
9,500	4, 920	6, 330	2. 68	8, 440	. 95	. 73
10,000	5, 180	6, 670	2. 55	8, 890	1. 00	. 77
10,500	5, 440	7, 000	2. 42	9, 330	1. 05	. 81
11,000	5, 700	7, 330	2. 32	9, 780	1. 10	. 85
11,500	5, 960	7, 670	2. 22	10, 220	1. 15	. 89
12,000	6, 220	8, 000	2. 12	10, 670	1. 20	. 93
12,500	6, 480	8, 330	2. 04	11, 110	1. 25	. 97
13,000	6, 740	8, 670	1. 97	11, 560	1. 30	1. 01
13,500	7, 000	9, 000	1. 89	12, 000	1. 35	1. 04
14,000	7, 250	9, 330	1. 83	12, 450	1. 40	1. 08
14,500	7, 510	9, 670	1. 76	12, 890	1. 45	1. 12
15,000	7, 770	10, 000	1. 70	13, 330	1. 50	1. 16
15,500	8, 030	10, 330	1. 65	13, 780	1. 55	1. 20
16,000	8, 290	10, 670	1. 60	14, 220	1. 60	1. 24
16,500	8, 550	11, 000	1. 55	14, 670	1. 65	1. 28
17,000	8, 810	11, 330	1. 50	15, 110	1. 70	1. 31
17,500	9, 070	11, 670	1. 46	15, 560	1. 75	1. 35
18,000	9, 330	12, 000	1. 42	16, 000	1. 80	1. 39
18,500	9, 580	12, 330	1. 38	16, 450	1. 85	1. 43
19,000	9, 840	12. 670	1. 34	16, 890	1. 90	1. 47

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

13.5-INCH FOCAL LENGTH LENS; 7- BY 9-INCH FOCAL PLANE—Continued

Focal length	13. 5 inches					
Plate size	7 by 9 inches		Photographs per mile 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet				Map scale 1:48, 000	Map scale 1:62, 500
	Length	Width				
19,500	10, 100	13, 000	1. 31	17, 330	1. 95	1. 51
20,000	10, 360	13, 330	1. 28	17, 780	2. 00	1. 55
20,500	10, 620	13, 670	1. 25	18, 220	2. 05	1. 59
21,000	10, 880	14, 000	1. 22	18, 670	2. 10	1. 62
21,500	11, 140	14, 330	1. 19	19, 110	2. 15	1. 66
22,000	11, 400	14, 670	1. 16	19, 560	2. 20	1. 70
22,500	11, 660	15, 000	1. 13	20, 000	2. 25	1. 74
23,000	11, 910	15, 330	1. 11	20, 450	2. 30	1. 78
23,500	12, 180	15, 670	1. 09	20, 890	2. 35	1. 82
24,000	12, 440	16, 000	1. 06	21, 340	2. 40	1. 86
24,500	12, 690	16, 330	1. 04	21, 780	2. 45	1. 89
25,000	12, 950	16, 670	1. 02	22, 220	2. 50	1. 93
25,500	13, 210	17, 000	1. 00	22, 670	2. 55	1. 97
26,000	13, 470	17, 330	. 98	23, 110	2. 60	2. 01
26,500	13, 730	17, 670	. 97	23, 560	2. 65	2. 05
27,000	13, 990	18, 000	. 95	24, 000	2. 70	2. 09
27,500	14, 250	18, 330	. 93	24, 450	2. 75	2. 13
28,000	14, 500	18, 670	. 91	24, 890	2. 80	2. 17
28,500	14, 760	19, 000	. 89	25, 340	2. 85	2. 20
29,000	15, 020	19, 330	. 88	25, 780	2. 90	2. 24
29,500	15, 280	19, 670	. 87	26, 230	2. 95	2. 28
30,000	15, 540	20, 000	. 85	26, 670	3. 00	2. 32

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

24-INCH FOCAL LENGTH LENS; 9- BY 18-INCH FOCAL PLANE,

Focal length	24 inches					
Plate size	7 by 18 inches		Photographs per mile 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
Altitude in feet	Coverage in feet				Map scale 1: 48,000	Map scale 1: 62,500
	Length	Width				
1,000	375	750	35. 2	500	0. 11	0. 09
1,500	562	1, 125	23. 46	750	. 17	. 13
2,000	750	1, 500	17. 60	1, 000	. 22	. 17
2,500	937	1, 875	14. 08	1, 250	. 28	. 22
3,000	1, 125	2, 250	11. 74	1, 500	. 34	. 26
3,500	1, 312	2, 625	10. 06	1, 750	. 39	. 30
4,000	1, 500	3, 000	8. 80	2, 000	. 45	. 34
4,500	1, 687	3, 375	7. 82	2, 250	. 50	. 39
5,000	1, 875	3, 750	7. 04	2, 500	. 56	. 43
5,500	2, 062	4, 125	6. 40	2, 750	. 62	. 47
6,000	2, 250	4, 500	5. 86	3, 000	. 67	. 52
6,500	2, 437	4, 875	5. 42	3, 250	. 73	. 56
7,000	2, 625	5, 250	5. 02	3, 500	. 79	. 60
7,500	2, 812	5, 625	4. 70	3, 750	. 84	. 65
8,000	3, 000	6, 000	4. 40	4, 000	. 90	. 69
8,500	3, 187	6, 375	4. 14	4, 250	. 96	. 73
9,000	3, 375	6, 750	3. 90	4, 500	1. 01	. 78
9,500	3, 562	7, 125	3. 70	4, 750	1. 07	. 82
10,000	3, 750	7, 500	3. 52	5, 000	1. 12	. 86
10,500	3, 937	7, 875	3. 36	5, 250	1. 18	. 91
11,000	4, 125	8, 250	3. 20	5, 500	1. 24	. 95
11,500	4, 312	8, 625	3. 06	5, 750	1. 29	. 99
12,000	4, 500	9, 000	2. 94	6, 000	1. 35	1. 04
12,500	4, 687	9, 375	2. 82	6, 250	1. 40	1. 08
13,000	4, 875	9, 750	2. 70	6, 500	1. 46	1. 12
13,500	5, 012	10, 125	2. 60	6, 750	1. 51	1. 17
14,000	5, 250	10, 500	2. 52	7, 000	1. 57	1. 21
14,500	5, 437	10, 875	2. 42	7, 250	1. 63	1. 25
15,000	5, 625	11, 250	2. 34	7, 500	1. 68	1. 29
15,500	5, 812	11, 625	2. 26	7, 750	1. 74	1. 34
16,000	6, 000	12, 000	2. 20	8, 000	1. 80	1. 38
16,500	6, 187	12, 375	2. 14	8, 250	1. 85	1. 42
17,000	6, 375	12, 750	2. 06	8, 500	1. 91	1. 47
17,500	6, 562	13, 125	2. 00	8, 750	1. 96	1. 51
18 000	6, 750	13, 500	1. 96	9, 000	2. 02	1. 55
18,500	6, 937	13, 875	1. 90	9, 250	2. 08	1. 60
19,000	7, 125	14, 250	1. 86	9, 500	2. 13	1. 64

TABLE I.—*Photographs per mile, scale, and flight line separation on maps to give 40 percent side overlap*—Continued

24-INCH FOCAL LENGTH LENS; 9- BY 18-INCH FOCAL PLANE—Continued

Focal length	24 inches					
Plate size	7 by 18 inches		Photographs per mile 60 percent overlap	Scale R. F.=1:	Flight line separation (inches)	
	Coverage in feet				Map scale 1: 48,000	Map scale 1: 62,500
Altitude in feet	Length	Width				
19,500	7, 312	14, 625	1. 80	9, 750	2. 19	1. 68
20,000	7, 500	15, 000	1. 76	10, 000	2. 25	1. 73
20,500	7, 687	15, 375	1. 72	10, 250	2. 30	1. 77
21,000	7, 875	15, 750	1. 68	10, 500	2. 36	1. 81
21,500	8, 062	16, 125	1. 64	10, 750	2. 41	1. 86
22,000	8, 250	16, 500	1. 60	11, 000	2. 47	1. 90
22,500	8, 437	16, 875	1. 56	11, 250	2. 53	1. 94
23,000	8, 625	17, 250	1. 52	11, 500	2. 58	1. 99
23,500	8, 812	17, 625	1. 50	11, 750	2. 64	2. 03
24,000	9, 000	18, 000	1. 46	12, 000	2. 70	2. 07
24,500	9, 187	18, 375	1. 42	12, 250	2. 76	2. 12
25,000	9, 375	18, 750	1. 40	12, 500	2. 81	2. 16
25,500	9, 550	19, 125	1. 38	12, 750	2. 87	2. 20
26,000	9, 750	19, 500	1. 36	13, 000	2. 92	2. 25
26,500	9, 937	19, 875	1. 32	13, 250	2. 98	2. 29
27,000	10, 125	20, 250	1. 30	13, 500	3. 04	2. 33
27,500	10, 312	20, 625	1. 28	13, 750	3. 09	2. 37
28,000	10, 500	21, 000	1. 26	14, 000	3. 15	2. 42
28,500	10, 687	21, 375	1. 24	14, 250	3. 21	2. 46
29,000	10, 875	21, 750	1. 22	14, 500	3. 26	2. 50
29,500	11, 062	22, 125	1. 20	14, 750	3. 32	2. 55
30,000	11, 250	22, 500	1. 18	15, 000	3. 37	2. 59

TABLE II.—*Coverage at various altitudes, scale, photographs per mile, and flight line separation on maps to give 40 percent sidelap*

6-INCH FOCAL LENGTH LENS (MULTIPLE LENS CAMERA)

Altitude in feet	Coverage in miles	Scale R. F.=1:	Photographs per mile, 60 percent overlap	Flight line separation in inches		
				Map scale 1:96,000	Map scale 1:125,000	Map scale 1:250,000
1,000	1. 04	2, 030	13. 00	0. 41	0. 33	0. 17
1,500	1. 56	3, 090	8. 66	. 62	. 47	. 23
2,000	2. 08	4, 100	6. 50	. 84	. 63	. 31
2,500	2. 70	5, 125	5. 20	1. 08	. 82	. 42
3,000	3. 12	6, 150	4. 33	1. 24	. 95	. 47
3,500	3. 64	7, 175	3. 71	1. 51	1. 12	. 56
4,000	4. 16	8, 200	3. 25	1. 65	1. 26	. 63
4,500	4. 68	9, 230	3. 89	1. 86	1. 42	. 71
5,000	5. 20	10, 200	2. 60	2. 03	1. 58	. 79
5,500	5. 70	11, 000	2. 36	2. 26	1. 73	. 86
6,000	6. 20	12, 200	2. 17	2. 46	1. 87	. 93
6,500	6. 70	13, 350	2. 00	2. 67	2. 04	1. 02
7,000	7. 20	14, 200	1. 86	2. 86	2. 19	1. 09
7,500	7. 72	15, 400	1. 73	3. 07	2. 34	1. 17
8,000	8. 30	16, 300	1. 63	3. 30	2. 52	1. 26
8,500	8. 80	17, 420	1. 53	3. 51	2. 69	1. 34
9,000	9. 30	18, 300	1. 44	3. 68	2. 82	1. 41
9,500	9. 88	19, 350	1. 37	3. 92	3. 00	1. 50
10,000	10. 40	20, 300	1. 30	4. 12	3. 16	1. 58
10,500	10. 70	22, 390	1. 24	4. 26	3. 25	1. 62
11,000	11. 40	22, 400	1. 18	4. 52	3. 46	1. 73
11,500	11. 90	23, 420	1. 13	4. 72	3. 62	1. 81
12,000	12. 40	24, 400	1. 08	4. 92	3. 77	1. 88
12,500	12. 95	25, 390	1. 04	5. 13	3. 94	1. 97
13,000	13. 50	26, 400	1. 00	5. 34	4. 11	2. 05
13,500	14. 00	27, 600	. 97	5. 54	4. 25	2. 12
14,000	14. 50	28, 400	. 93	5. 74	4. 41	2. 20
14,500	15. 00	29, 450	. 90	5. 94	4. 56	2. 28
15,000	15. 50	30, 500	. 87	6. 14	4. 72	2. 36
15,500	16. 05	31, 500	. 84	6. 34	4. 88	2. 44
16,000	16. 60	32, 500	. 81	6. 67	5. 05	2. 52
16,500	17. 20	33, 500	. 79	6. 81	5. 23	2. 61
17,000	17. 60	34, 500	. 77	6. 97	5. 35	2. 67
17,500	18. 15	35, 550	. 75	7. 15	5. 52	2. 76
18,000	18. 70	36, 600	. 72	7. 40	5. 68	2. 84
18,500	19. 20	37, 600	. 71	7. 60	5. 83	2. 91
19,000	19. 70	38, 600	. 69	7. 80	5. 98	2. 99
19,500	20. 20	39, 590	. 68	8. 00	6. 14	3. 07
20,000	20. 70	40, 600	. 65	8. 19	6. 28	3. 14
20,500	21. 25	41, 600	. 64	8. 43	6. 46	3. 23

TABLE II.—*Coverage at various altitudes, scale, photographs per mile, and flight line separation on maps to give 40 percent sidelap*—Continued

6-INCH FOCAL LENGTH LENS (MULTIPLE LENS CAMERA)—Continued

Altitude in feet	Coverage in miles	Scale R. F.=1:	Photographs per mile, 60 percent overlap	Flight line separation in inches		
				Map scale 1:96,000	Map scale 1:125,000	Map scale 1:250,000
21,000	21. 80	42, 700	0. 62	8. 63	6. 63	3. 31
21,500	22. 30	43, 700	. 61	8. 75	6. 78	3. 39
22,000	22. 80	44, 700	. 59	9. 03	6. 93	3. 46
22,500	23. 30	45, 700	. 58	9. 31	7. 08	3. 54
23,000	23. 80	46, 700	. 57	9. 43	7. 23	3. 61
23,500	24. 35	47, 750	. 56	9. 64	7. 40	3. 70
24,000	24. 90	48, 800	. 54	9. 96	7. 57	3. 78
24,500	25. 40	49, 800	. 53	10. 06	7. 72	3. 86
25,000	25. 90	50, 800	. 52	10. 26	7. 87	3. 93
25,500	26. 40	51, 800	. 51	10. 45	8. 03	4. 01
26,000	26. 90	52, 800	. 50	10. 66	8. 18	4. 09
26,500	27. 40	53, 800	. 49	10. 85	8. 33	4. 16
27,000	27. 90	54, 800	. 48	11. 05	8. 48	4. 24
27,500	28. 40	55, 900	. 47	11. 25	8. 63	4. 31
28,000	29. 00	56, 900	. 47	11. 49	8. 82	4. 41
28,500	29. 50	57, 950	. 46	11. 69	8. 97	4. 48
29,000	30. 00	58, 950	. 45	11. 88	9. 12	4. 56
29,500	30. 50	60, 000	. 44	12. 09	9. 27	4. 63
30,000	31. 00	61, 000	. 44	12. 27	9. 42	4. 71

TABLE III.—*Coverage and scale*

10-INCH FOCAL LENGTH LENS, 5- BY 7-INCH FOCAL PLANE (ALSO 20-INCH+40-INCH); AND 6⅜-INCH FOCAL LENGTH LENS, 4- BY 5-INCH FOCAL PLANE

Focal length	10 inches			6⅜ inches		
Plate size	5 by 7 inches			4 by 5 inches		
Altitude in feet	Coverage in feet[1]		Scale R. F.=1:[2]	Coverage in feet[1]		Scale R. F.=1:[2]
	Length	Width		Length	Width	
1,000	500	700	1, 200	637	797	1, 880
1,500	750	1, 050	1, 800	956	1, 170	2, 820
2,000	1, 000	1, 400	2, 400	1, 267	1, 596	3, 770
2,500	1, 250	1, 750	3, 000	1, 597	1, 994	4, 710
3,000	1, 500	2, 100	3, 600	1, 914	2, 390	5, 140
3,500	1, 750	2, 450	4, 200	2, 230	2, 790	6, 580
4,000	2, 000	2, 800	4, 800	2, 550	3, 190	7, 520
4,500	2, 250	3, 150	5, 400	2, 870	3, 590	8, 470
5,000	2, 500	3, 500	6, 000	3, 190	3, 990	9, 410
5,500	2, 750	3, 850	6, 600	3, 510	4, 390	10, 360
6,000	3, 000	4, 200	7, 200	3, 830	4, 790	11, 300
6,500	3, 250	4, 550	7, 800	4, 140	5, 190	12, 240
7,000	3, 500	4, 900	8, 400	4, 460	5, 580	13, 180
7,500	3, 750	5, 250	9, 000	4, 780	5, 980	14, 110
8,000	4, 000	5, 600	9, 600	5, 100	6, 380	15, 050
8,500	4, 250	5, 950	10, 200	5, 420	6, 780	16, 000
9,000	4, 500	6, 300	10, 800	5, 740	7, 180	16, 940
9,500	4, 750	6, 650	11, 400	6, 060	7, 570	17, 880
10,000	5, 000	7, 000	12, 000	6, 370	7, 970	18, 830
10,500	5, 250	7, 350	12, 600	6, 710	8, 370	19, 770
11,000	5, 500	7, 700	13, 200	7, 020	8, 770	20, 730
11,500	5, 750	8, 050	13, 800	7, 340	9, 170	21, 640
12,000	6, 000	8, 400	14, 400	7, 650	9, 570	22, 560
12,500	6, 250	8, 750	15, 000	7, 970	9, 970	23, 530
13,000	6, 500	9, 100	15, 600	8, 280	10, 380	24, 450
13,500	6, 750	9, 450	16, 200	8, 610	10, 780	25, 400
14,000	7, 000	9, 800	16, 800	8, 930	11, 180	26, 350
14,500	7, 250	10, 150	17, 400	9, 250	11, 580	27, 280
15,000	7, 500	10, 500	18, 000	9, 560	11, 980	28, 220
15,500	7, 750	10, 850	18, 600	9, 880	12, 380	29, 170
16,000	8, 000	11, 200	19, 200	10, 210	12, 780	30, 100
16,500	8, 250	11, 550	19, 800	10, 530	13, 170	31, 050
17,000	8, 500	11, 900	20, 400	10, 840	13, 570	32, 000
17,500	8, 750	12, 250	21, 000	11, 160	13, 970	32, 950
18,000	9, 000	12, 600	21, 600	11, 480	14, 370	33, 900

[1] Coverage given by 20-inch lens=$\frac{\text{coverage given by 10-inch lens}}{2}$; coverage given by 40-inch lens=$\frac{\text{coverage given by 10-inch lens.}}{4}$

[2] Scale obtained by 20-inch lens=scale obtained by a 10-inch lens×2; scale obtained by 40-inch lens=scale obtained by a 10-inch lens×4.

TABLE III.—*Coverage and scale*—Continued

10-INCH FOCAL LENGTH LENS, 5- BY 7-INCH FOCAL PLANE (ALSO 20-INCH+40-INCH); AND 6⅜-INCH FOCAL LENGTH LENS, 4- BY 5-INCH FOCAL PLANE—Continued

Focal length	10 inches			6⅜ inches		
Plate size	5 by 7 inches			4 by 5 inches		
Altitude in feet	Coverage in feet		Scale R. F.=1:	Coverage in feet		Scale R. F.=1:
	Length	Width		Length	Width	
18,500	9, 250	12, 950	22, 200	11, 790	14, 770	34, 800
19,000	9, 500	13, 300	22, 800	12, 120	15, 170	35, 780
19,500	9, 750	13, 650	23, 400	12, 440	15, 570	36, 700
20,000	10, 000	14, 000	24, 000	12, 760	15, 970	37, 630
20,500	10, 250	14, 350	24, 600	13, 090	16, 370	38, 580
21,000	10, 500	14, 700	25, 200	13, 400	16, 770	39, 520
21,500	10, 750	15, 050	25, 800	13, 720	17, 170	40, 400
22,000	11, 000	15, 400	26, 400	14, 040	17, 570	41, 380
22,500	11, 250	15, 750	27, 000	14, 360	17, 970	42, 350
23,000	11, 500	16, 100	27, 600	14, 680	18, 370	43, 300
23,500	11, 750	16, 450	28, 200	15, 000	18, 770	44, 250
24,000	12, 000	16, 800	28, 800	15, 320	19, 170	45, 200
24,500	12, 250	17, 150	29, 400	15, 640	19, 560	46, 150
25,000	12, 500	17, 500	30, 000	15, 960	19, 960	47, 080
25,500	12, 750	17, 850	30, 600	16, 370	20, 360	47, 990
26,000	13, 000	18, 200	31, 200	16, 590	20, 760	48, 850
26,500	13, 250	18, 550	31, 800	16, 920	21, 160	49, 800
27,000	13, 500	18, 900	32, 400	17, 230	21, 560	50, 800
27,500	13, 750	19, 250	33, 000	17, 550	21, 960	51, 750
28,000	14, 000	19, 600	33, 600	17, 860	22, 360	52, 700
28,500	14, 250	19, 950	34, 200	18, 180	22, 760	53, 650
29,000	14, 500	20, 300	34, 800	18, 500	23, 160	54, 600
29,500	14, 750	20, 650	35, 400	18, 820	23, 560	55, 540
30,000	15, 000	21, 000	36, 000	19, 140	23, 960	56, 490

NOTE.—To find oblique distance from front to rear of photograph with camera at an angle of 45° from the vertical.

6⅜-inch focal length; 4- by 5-inch focal plane		10-inch focal length; 5- by 7-inch focal plane		12-inch focal length; 7- by 9-inch focal plane	
4-inch side=altitude×1.393=distance		5-inch side=altitude×0.634=distance		7-inch side=altitude×1.276=distance	
Altitude	Distance	Altitude	Distance	Altitude	Distance
2,000	2, 786	2,000	1, 268	2,000	2, 552
4,000	5, 572	4,000	2, 536	4,000	5, 104
6,000	8, 358	6,000	3, 804	6,000	7, 656
8,000	11, 144	8,000	5, 072	8,000	12, 208
0,000	13, 930	10,000	6, 340	10,000	12, 760
2,000	16, 716	12,000	7, 608	12,000	15, 312

APPENDIX III

AERIAL CAMERA COVERAGE AND INTERVAL TABLE

6-INCH LENS, 9- BY 9-INCH PLATE

Altitude above terrain	Longitudinal ground coverage	Lateral ground coverage	Square mile area covered	Ground advance between exposures 60 percent overlap	Lateral coverage 40 percent overlap	Lateral coverage 10 percent overlap	Ground speed (mph)												
							160	180	200	220	240	260	280	300	320	340	360	380	400
							Exposure interval (seconds)												
			Acres																
1,000	1, 500	1, 500	51	600	900	1, 350	2. 5	2. 2	2	1. 8	1. 7	1. 5	1. 4	1. 3	1. 2	1. 2	1. 1	1	1
2,000	3, 000	3, 000	206	1, 200	1, 800	2, 700	5. 1	4. 5	4	3. 7	3. 4	3. 1	2. 9	2. 7	2. 5	2. 4	2. 2	2. 1	2
3,000	4, 500	4, 500	464	1, 800	2, 700	4, 050	7. 6	6. 8	6. 1	5. 5	5. 1	4. 7	4. 3	4	3. 8	3. 6	3. 4	3. 2	3
			Square miles																
4,000	6, 000	6, 000	1. 2	2, 400	3, 600	5, 400	10	9	8	7. 4	6. 8	6. 2	5. 8	5. 4	5. 1	4. 8	4. 5	4. 3	4
5,000	7, 500	7, 500	2	3, 000	4, 500	6, 750	12	11	10	9. 2	8. 5	7. 8	7. 3	6. 8	6. 3	6	5. 6	5. 3	5. 1
6,000	9, 000	9, 000	2. 9	3, 600	5, 400	8, 100	15	13	12	11	10	9. 4	8. 7	8. 1	7. 6	7. 2	6. 8	6. 4	6. 1
7,000	10, 500	10, 500	3. 9	4, 200	6, 300	9, 450	17	15	14	13	11	11	10	9. 5	8. 9	8. 4	7. 9	7. 5	7. 1
8,000	12, 000	12, 000	5	4, 800	7, 200	10, 800	20	18	16	14	13	12	11	10	10	9. 6	9	8. 6	8. 1
9,000	13, 500	13, 500	6. 5	5, 400	8, 100	12, 150	23	20	18	16	15	14	13	12	11	10	10	9. 6	9. 2
10,000	15, 000	15, 000	8	6, 000	9, 000	13, 500	25	22	20	18	17	15	14	13	12	12	11	10	10
11,000	16, 500	16, 500	9. 7	6, 600	9, 900	14, 850	28	25	22	20	18	17	16	15	14	13	12	11	11
12,000	18, 000	18, 000	11. 6	7, 200	10, 800	16, 200	30	27	24	22	20	18	17	16	15	14	13	12	12
13,000	19, 500	19, 500	13. 6	7, 800	11, 700	17, 550	33	29	26	24	22	20	18	17	16	15	14	13	13
14,000	21, 000	21, 000	15. 8	8, 400	12, 600	18, 900	35	31	28	26	23	22	20	19	17	16	15	15	14
15,000	22, 500	22, 500	18	9, 000	13, 500	20, 250	38	34	30	27	25	23	21	20	19	18	17	16	15
16,000	24, 000	24, 000	20	9, 600	14, 400	21, 600	40	36	32	29	27	25	23	21	20	19	18	17	16
17,000	25, 500	25, 500	23	10, 200	15, 300	22, 950	43	38	34	31	28	26	24	23	21	20	19	18	17
18,000	27, 000	27, 000	26	10, 800	16, 200	24, 300	46	40	36	33	30	28	26	24	23	21	20	19	18
19,000	28, 500	28, 500	29	11, 400	17, 100	25, 650	48	43	38	35	32	29	27	25	24	22	21	20	19
20,000	30, 000	30, 000	32	12, 000	18, 000	27, 000	51	45	40	37	34	31	29	27	25	24	22	21	20

	31, 500	31, 500	35	12, 600	18, 900	28, 350	53	47	42	39	35	33	30	28	26	25	23	22	21
22,000	33, 000	33, 000	39	13, 200	19, 800	29, 700	56	50	45	40	37	34	32	30	28	26	25	23	22
23,000	34, 500	34, 500	42	13, 800	20, 700	31, 050	58	52	47	42	39	36	33	31	29	27	26	24	23
24,000	36, 000	36, 000	46	14, 400	21, 600	32, 400	61	54	49	44	40	37	35	32	30	28	27	25	24
25,000	37, 500	37, 500	50	15, 000	22, 500	33, 750	63	56	51	46	42	39	36	34	31	30	28	26	25
26,000	39, 000	39, 000	54	15, 600	23, 400	35, 100	66	59	53	48	44	40	37	35	33	31	29	27	26
27,000	40, 500	40, 500	58. 8	16, 200	24, 300	36, 450	69	61	55	50	46	42	39	36	34	32	30	29	27
28,000	42, 000	42, 000	63	16, 800	25, 200	37, 800	71	63	57	52	47	44	40	38	35	33	31	30	28
29,000	43, 500	43, 500	67. 8	17, 400	26, 100	39, 150	74	65	59	53	49	45	42	39	37	34	32	31	29
30,000	45, 000	45, 000	72. 6	18, 000	27, 000	40, 500	76	68	61	55	51	47	43	40	38	36	34	32	30
31,000	46, 500	46, 500	77	18, 600	27, 900	41, 850	79	70	63	57	52	48	45	42	39	37	35	33	31
32,000	48, 000	48, 000	82	19, 200	28, 800	43, 200	81	72	65	59	54	50	46	43	40	38	36	34	32
33,000	49, 500	49, 500	87. 8	19, 800	29, 700	44, 550	84	75	67	61	56	51	48	45	42	39	37	35	33
34,000	51, 000	51, 000	93	20, 400	30, 600	45, 900	86	77	69	63	57	53	49	46	43	40	38	36	34
35,000	52, 500	52, 500	98. 8	21, 000	31, 500	47, 250	89	79	71	65	59	55	51	47	44	42	39	37	35
36,000	54, 000	54, 000	104	21, 600	32, 400	48, 600	92	81	73	66	61	56	52	49	46	43	40	38	36
37,000	55, 500	55, 500	110	22, 200	33, 300	49, 950	94	84	75	68	63	58	54	50	47	44	42	39	37
38,000	57, 000	57, 000	116	22, 800	34, 200	51, 300	97	86	77	70	64	59	55	51	48	45	43	40	38
39,000	58, 500	58, 500	122	23, 400	35, 100	52, 650	99	88	79	72	66	61	56	53	49	46	44	41	39
40,000	60, 000	60, 000	129	24, 000	36, 000	54, 000	102	90	81	74	68	62	58	54	51	48	45	43	40

6⅜-INCH LENS, 4- BY 5-INCH PLATE

			Acres																
1,000	627	748	11	251	470	705	1	. 95	. 85	. 77	. 71	. 65	. 61	. 57	. 53	. 50	. 47	. 45	. 42
2,000	1, 254	1, 568	45	502	941	1, 411	2. 1	1. 9	1. 7	1. 5	1. 4	1. 3	1. 2	1. 1	1. 0	1. 0	9. 5	9. 0	8. 5
3,000	1, 882	2, 352	101	753	1, 411	2, 117	3. 2	2. 8	2. 5	2. 3	2. 1	1. 9	1. 8	1. 7	1. 6	1. 5	1. 4	1. 3	1. 2
4,000	2, 509	3, 137	180	1, 003	1, 882	2, 823	4. 2	3. 8	3. 4	3. 1	2. 8	2. 6	2. 4	2. 2	2. 1	2. 0	1. 9	1. 8	1. 7
5,000	3, 137	3, 921	282	1, 254	2, 352	3, 529	5. 3	4. 7	4. 2	3. 8	3. 5	3. 2	3	2. 8	2. 6	2. 5	2. 3	2. 2	2. 1
6,000	3, 764	4, 705	406	1, 505	2, 823	4, 235	6. 4	5. 7	5. 1	4. 6	4. 2	3. 9	3. 6	3. 4	3. 2	3	2. 8	2. 7	2. 5
7,000	4, 392	5, 490	553	1, 756	3, 294	4, 941	7. 4	6. 6	5. 9	5. 4	4. 9	4. 6	4. 2	3. 9	3. 7	3. 5	3. 3	3. 1	2. 9
			Square miles																
8,000	5, 019	6, 274	1. 1	2, 007	3, 764	5, 647	8. 5	7. 6	6. 8	6. 2	5. 7	5. 2	4. 8	4. 5	4. 2	4	3. 8	3. 6	3. 4
9,000	5, 647	7, 058	1. 4	2, 258	4, 235	6, 352	9. 6	8. 5	7. 7	7	6. 4	5. 9	5. 5	5. 1	4. 8	4. 5	4. 2	4	3. 8
10,000	6, 274	7, 843	1. 7	2, 509	4, 705	7, 058	10	9. 5	8. 5	7. 7	7. 1	6. 5	6. 1	5. 7	5. 3	5	4. 7	4. 5	4. 2

AERIAL CAMERA COVERAGE AND INTERVAL TABLE—Continued

6⅜-INCH LENS, 4- BY 5-INCH PLATE—Continued

Altitude above terrain	Longitudinal ground coverage	Lateral ground coverage	Square mile area covered	Ground advance between exposures 60-percent overlap	Lateral coverage 40-percent overlap	Lateral coverage 10-percent overlap	Ground speed (mph)												
							160	180	200	220	240	260	280	300	320	340	360	380	400
							Exposure interval (seconds)												
			Square miles																
11,000	6, 901	8, 627	2. 1	2, 759	5, 176	7, 764	11	10	9. 4	8. 5	7. 8	7. 2	6. 7	6. 2	5. 8	5. 5	5. 2	4. 9	4. 7
12,000	7, 529	9, 411	2. 5	3, 010	5, 647	8, 470	12	11	10	9. 3	8. 5	7. 8	7. 3	6. 8	6. 4	6	5. 7	5. 4	5. 1
13,000	8, 156	10, 196	2. 9	3, 261	6, 117	9, 176	13	12	11	10	9. 2	8. 5	7. 9	7. 4	6. 9	6. 5	6. 1	5. 8	5. 5
14,000	8, 784	10, 980	3. 4	3, 512	6, 588	9, 882	14	13	11	10	9. 9	9. 2	8. 5	7. 9	7. 4	7	6. 6	6. 3	5. 9
15,000	9, 411	11, 764	3. 9	3, 763	7, 058	10, 588	16	14	12	11	10	9. 8	9. 1	8. 5	8	7. 5	7. 1	6. 7	6. 4
16,000	10, 079	12, 549	4. 5	4, 014	7, 529	11, 294	17	15	13	12	11	10	9. 7	9. 1	8. 5	8	7. 6	7. 2	6. 8
17,000	10, 666	13, 333	5. 1	4, 265	7, 999	11, 999	18	16	14	13	12	11	10	9. 6	9	8. 5	8. 1	7. 6	7. 2
18,000	11, 294	14, 117	5. 7	4, 516	8, 470	12, 705	19	17	15	14	12	11	11	10	9. 6	9	8. 5	8. 1	7. 7
19,000	11, 921	14, 901	6. 3	4, 767	8, 941	13, 411	20	18	16	14	13	12	11	10	10	9. 5	9	8. 5	8. 1
20,000	12, 549	15, 686	7	5, 018	9, 411	14, 117	21	19	17	15	14	13	12	11	10	10	9. 5	9	8. 5
21,000	13, 176	16, 470	7. 7	5, 268	9, 882	14, 823	22	19	17	16	14	13	12	11	11	10	9. 9	9. 4	8. 9
22,000	13, 803	17, 254	8. 5	5, 519	10, 352	15, 529	23	20	18	17	15	14	13	12	11	11	10	9. 9	9. 4
23,000	14, 431	18, 039	9. 3	5, 770	10, 823	16, 235	24	21	19	17	16	15	14	13	12	11	10	10	9. 8
24,000	15, 058	18, 823	10	6, 021	11, 294	16, 941	25	22	20	18	17	15	14	13	12	12	11	10	10
25,000	15, 686	19, 607	11	6, 272	11, 764	17, 647	26	23	21	19	17	16	15	14	13	12	11	11	10
26,000	16, 313	20, 392	11	6, 523	12, 235	18, 352	27	24	22	20	18	17	15	14	13	13	12	11	11
27,000	16, 941	21, 176	12	6, 774	12, 705	19, 058	28	25	23	21	19	17	16	15	14	13	12	12	11
28,000	17, 568	21, 960	13	7, 025	13, 176	19, 764	29	26	23	21	19	18	17	15	14	14	13	12	11
29,000	18, 196	22, 745	14	7, 276	13, 647	20, 470	31	27	24	22	20	19	17	16	15	14	13	13	12
30,000	18, 823	23, 529	15	7, 527	14, 117	21, 176	32	28	25	23	21	19	18	17	16	15	14	13	12
31,000	19, 450	24, 313	16	7, 777	14, 588	21, 882	33	29	26	24	22	20	18	17	16	15	14	13	13
32,000	20, 078	25, 098	18	8, 028	15, 058	22, 588	34	30	27	24	22	21	19	18	17	16	15	14	13
33,000	20, 705	25, 882	19	8, 279	15, 529	23, 294	35	31	28	25	23	21	20	18	17	16	15	14	14
34,000	21, 333	26, 666	20	8, 530	15, 999	23, 999	36	32	29	26	24	22	20	19	18	17	16	15	14
35,000	21, 960	27, 450	21	8, 781	16, 470	24, 705	37	33	29	27	24	23	21	19	18	17	16	15	14

[illegible]	[illegible]	[illegible]	22	9,032	16,941	25,411	38	34	30	28	25	23	22	20	19	18	17	16	15
37,000	23,215	29,019	24	9,283	17,411	26,117	39	35	31	28	26	24	22	21	19	18	17	16	15
38,000	23,843	29,809	25	9,534	17,882	26,823	40	36	32	29	27	25	23	21	20	19	18	17	16
39,000	24,470	30,588	26	9,785	18,352	27,525	41	37	33	30	27	25	23	22	20	19	18	17	16
40,000	25,098	31,372	28	10,036	18,823	28,235	42	38	34	31	28	26	24	22	21	20	19	18	17

8¼-INCH LENS, 7- BY 9-INCH PLATE

			Acres															
1,000	848	1,090	21	339	654	981	1.4	1.2	1.1	1.0	.96	.88	.82	.77	.72	.67	.64	.60	.57
2,000	1,696	2,181	85	678	1,308	1,962	2.8	2.5	2.3	2.1	1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
3,000	2,545	3,272	191	1,018	1,963	2,944	4.3	3.8	3.4	3.1	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7
4,000	3,393	4,363	340	1,357	2,617	3,926	5.7	5.1	4.6	4.2	3.8	3.5	3.3	3.0	2.8	2.7	2.5	2.4	2.3
5,000	4,242	5,454	531	1,696	3,272	4,908	7.2	6.4	5.7	5.2	4.8	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8
			Square miles															
6,000	5,090	6,545	1.2	2,036	3,927	5,890	8.6	7.7	6.9	6.3	5.7	5.3	4.9	4.6	4.3	4.0	3.8	3.6	3.4
7,000	5,898	7,636	1.6	2,354	4,581	6,872	10	8.9	8.0	7.2	6.6	6.1	5.7	5.3	5.0	4.7	4.4	4.2	4.0
8,000	6,787	8,727	2.1	2,714	5,236	7,854	11	10	9.2	8.4	7.7	7.1	6.6	6.1	5.7	5.4	5.1	4.8	4.6
9,000	7,635	9,818	2.6	3,054	5,890	8,836	13	11	10	9.4	8.6	8.0	7.4	6.9	6.5	6.1	5.7	5.4	5.2
10,000	8,484	10,909	3.3	3,393	6,545	9,818	14	12	11	10	9.6	8.8	8.2	7.7	7.2	6.8	6.4	6.0	5.7
11,000	9,333	11,999	4	3,733	7,199	10,799	15	14	12	11	10	9.7	9.0	8.4	7.9	7.4	7.0	6.6	6.3
12,000	10,181	13,090	4.7	4,072	7,854	11,781	17	15	13	12	11	10	9.9	9.2	8.6	8.1	7.7	7.3	6.9
13,000	11,030	14,181	5.6	4,412	8,508	12,762	18	16	15	13	12	11	10	10	9.4	8.8	8.3	7.9	7.5
14,000	11,878	15,272	6.5	4,751	9,163	13,744	20	17	16	14	13	12	11	10	10	9.5	8.9	8.5	8.0
15,000	12,727	16,363	7.4	5,090	9,817	14,726	21	19	17	15	14	13	12	11	11	10	9.6	9.1	8.6
16,000	13,575	17,454	8.4	5,430	10,472	15,708	23	20	18	16	15	14	13	12	11	10	10	9.7	9.2
17,000	14,424	18,545	9.5	5,769	11,127	16,690	24	21	19	17	16	15	14	13	12	11	10	10	9.8
18,000	15,272	19,636	10.7	6,108	11,781	17,672	26	23	20	18	17	16	14	13	13	12	11	10	10
19,000	16,121	20,727	11	6,448	12,436	18,654	27	24	21	19	18	16	15	14	13	12	12	11	10
20,000	16,969	21,818	13	6,787	13,090	19,636	28	25	23	21	19	17	16	15	14	13	12	12	11
21,000	17,818	22,908	14	7,127	13,744	20,617	30	26	24	22	20	18	17	16	15	14	13	12	12
22,000	18,666	23,999	16	7,466	14,399	21,599	31	28	25	23	21	19	18	16	15	14	14	13	12
23,000	19,515	25,090	17	7,806	15,054	22,581	33	29	26	24	22	20	19	17	16	15	14	14	13
24,000	20,363	26,181	19	8,145	15,708	23,562	34	30	27	25	23	21	19	18	17	16	15	14	13
25,000	21,212	27,272	20	8,484	16,363	24,544	36	32	28	26	24	22	20	19	18	17	16	15	14
26,000	22,060	28,363	22	8,824	17,017	25,526	37	33	30	27	25	23	21	20	18	17	16	15	15

AERIAL CAMERA COVERAGE AND INTERVAL TABLE—Continued

8¼-INCH LENS, 7- BY 9-INCH PLATE—Continued

Altitude above terrain	Longitudinal ground coverage	Lateral ground coverage	Square mile area covered	Ground advance between exposures 60 percent overlap	Lateral coverage 40 percent overlap	Lateral coverage 10 percent overlap	Ground speed (mph) 160	180	200	220	240	260	280	300	320	340	360	380	400
							Exposure interval (seconds)												
			Square miles																
27,000	22, 908	29, 454	24	9, 163	17, 672	26, 508	39	34	31	28	26	24	22	20	19	18	17	16	15
28,000	23, 757	30, 545	26	9, 502	18, 327	27, 490	40	35	32	29	26	24	23	21	20	19	17	17	16
29,000	24, 605	31, 636	27	9, 842	18, 981	28, 472	42	37	33	30	27	25	23	22	20	19	18	17	16
30,000	25, 454	32, 727	29	10, 181	19, 636	29, 454	43	38	34	31	28	26	24	23	21	20	19	18	17
31,000	26, 302	33, 817	31	10, 520	20, 290	30, 435	44	39	35	32	29	27	25	23	22	21	19	18	17
32,000	27, 151	34, 908	33	10, 860	20, 944	31, 417	46	41	37	33	30	28	26	24	23	21	20	19	18
33,000	27, 999	35, 999	36	11, 199	21, 599	32, 399	47	42	38	34	31	29	27	25	23	22	21	20	19
34,000	28, 848	37, 090	38	11, 539	22, 254	33, 381	49	43	39	35	32	30	28	26	24	23	21	20	19
35,000	29, 696	38, 181	40	11, 878	22, 908	34, 362	50	44	40	36	33	31	28	26	25	23	22	21	20
36,000	30, 545	39, 272	43	12, 218	23, 563	35, 344	52	46	41	37	34	32	29	27	26	24	23	21	20
37,000	31, 393	40, 363	45	12, 557	24, 217	36, 326	53	47	42	38	35	32	30	28	26	25	23	22	21
38,000	32, 242	41, 454	47	12, 896	24, 872	37, 308	54	48	43	39	36	33	31	29	27	25	24	23	21
39,000	33, 090	42, 545	50	13, 236	25, 527	38, 290	56	50	45	40	37	34	32	30	28	26	25	23	22
40,000	33, 939	43, 636	53	13, 575	26, 181	39, 272	57	51	46	42	38	35	33	30	28	27	25	24	23

12-INCH LENS, 9- BY 9-INCH PLATE

Altitude above terrain	Longitudinal ground coverage	Lateral ground coverage	Square mile area covered	Ground advance between exposures 60 percent overlap	Lateral coverage 40 percent overlap	Lateral coverage 10 percent overlap	160	180	200	220	240	260	280	300	320	340	360	380	400
			Acres																
1,000	750	750	12	300	450	675	1. 2	1. 1	1	. 92	. 85	. 78	. 73	. 68	. 63	. 6	. 56	. 53	. 51
2,000	1, 500	1, 500	51	600	900	1, 350	2. 5	2. 2	2	1. 8	1. 7	1. 5	1. 4	1. 3	1. 2	1. 2	1. 1	1	1
3,000	2, 250	2, 250	116	900	1, 350	2, 025	3. 8	3. 4	3	2. 7	2. 5	2. 3	2. 1	2	1. 9	1. 8	1. 7	1. 6	1. 5
4,000	3, 000	3, 000	206	1, 200	1, 800	2, 700	5. 1	4. 5	4	3. 7	3. 4	3. 1	2. 9	2. 7	2. 5	2. 4	2. 2	2. 1	2
5,000	3, 750	3, 750	322	1, 500	2, 250	3, 375	6. 3	5. 6	5. 1	4. 6	4. 2	3. 9	3. 6	3. 4	3. 1	3	2. 8	2. 6	2. 5
6,000	4, 500	4, 500	464	1, 800	2, 700	4, 050	7. 6	6. 8	6. 1	5. 5	5. 1	4. 7	4. 3	4	3. 8	3. 6	3. 4	3. 2	3
7,000	5, 250	5, 250	622	2, 100	3, 150	4, 725	8. 9	7. 9	7. 1	6. 5	5. 9	5. 5	5. 1	4. 7	4. 4	4. 2	3. 9	3. 7	3. 5

			Square miles																
8,000	6,000	6,000	1.2	2,400	3,600	5,400	10	9	8.1	7.4	6.8	6.2	5.8	5.4	5.1	4.8	4.5	4.3	4
9,000	6,750	6,750	1.6	2,700	4,050	6,075	11	10	9.2	8.3	7.6	7	6.5	6.1	5.7	5.4	5.1	4.8	4.6
10,000	7,500	7,500	2	3,000	4,500	6,750	12	11	10	9.2	8.5	7.8	7.3	6.8	6.3	6	5.6	5.3	5.1
11,000	8,250	8,250	2.4	3,300	4,950	7,425	14	12	11	10	9.3	8.6	8	7.5	7	6.6	6.2	5.9	5.6
12,000	9,000	9,000	2.9	3,600	5,400	8,100	15	13	12	11	10	9.4	8.7	8.1	7.6	7.2	6.8	6.4	6.1
13,000	9,750	9,750	3.4	3,900	5,850	8,775	16	14	13	12	11	10	9.4	8.8	8.3	7.8	7.3	6.9	6.6
14,000	10,500	10,500	3.9	4,200	6,300	9,450	17	15	14	13	11	11	10	9.5	8.9	8.4	7.9	7.5	7.1
15,000	11,250	11,250	4.5	4,500	6,750	10,125	19	17	15	13	12	11	10	10	9.5	9	8.6	8	7.6
16,000	12,000	12,000	5.1	4,800	7,200	10,800	20	18	16	14	13	12	11	10	10	9.6	9	8.6	8.1
17,000	12,750	12,750	5.8	5,100	7,650	11,465	21	19	17	15	14	13	12	11	10	10	9.6	9.1	8.6
18,000	13,500	13,500	6.5	5,400	8,100	12,150	23	20	18	16	15	14	13	12	11	10	10	9.6	9.2
19,000	14,250	14,250	7.2	5,700	8,550	12,825	24	21	19	17	16	14	13	12	12	11	10	10	9.7
20,000	15,000	15,000	8	6,000	9,000	13,500	25	22	20	18	17	15	14	13	12	12	11	10	10
21,000	15,750	15,750	8.8	6,300	9,450	14,175	26	23	21	19	17	16	15	14	13	12	11	11	10
22,000	16,500	16,500	9.7	6,600	9,900	14,850	28	25	22	20	18	17	16	15	14	13	12	11	11
23,000	17,250	17,250	10.6	6,900	10,350	15,525	29	26	23	21	19	18	16	15	14	13	13	12	11
24,000	18,000	18,000	11	7,200	10,800	16,200	30	27	24	22	20	18	17	16	15	14	13	12	12
25,000	18,750	18,750	12	7,500	11,250	16,875	31	28	25	23	21	19	18	17	15	15	14	13	12
26,000	19,500	19,500	13	7,800	11,700	17,550	33	29	26	24	22	20	18	17	16	15	14	13	13
27,000	20,250	20,250	14	8,100	12,150	18,225	34	30	27	25	23	21	19	18	17	16	15	14	13
28,000	21,000	21,000	15	8,400	12,600	18,900	35	31	28	26	23	22	20	19	17	16	15	15	14
29,000	21,750	21,750	16	8,700	13,050	19,575	37	32	29	26	24	22	21	19	18	17	16	15	14
30,000	22,500	22,500	18	9,000	13,500	20,250	38	34	30	27	25	23	21	20	19	18	17	16	15
31,000	23,250	23,250	19	9,300	13,950	20,925	39	35	31	28	26	24	22	21	19	18	17	16	15
32,000	24,000	24,000	20	9,600	14,400	21,600	40	36	32	29	27	25	23	21	20	19	18	17	16
33,000	24,750	24,750	22	9,900	14,850	22,275	42	37	33	30	28	25	24	22	21	19	18	17	16
34,000	25,500	25,500	23	10,200	15,300	22,950	43	38	34	31	28	26	24	23	21	20	19	18	17
35,000	26,250	26,250	24	10,500	15,750	23,625	44	39	35	32	29	27	25	23	22	21	19	18	17
36,000	27,000	27,000	26	10,800	16,200	24,300	46	40	36	33	30	28	26	24	23	21	20	19	18
37,000	27,750	27,750	27	11,100	16,650	24,975	47	42	37	34	31	29	27	25	23	22	21	19	18
38,000	28,500	28,500	29	11,400	17,100	25,650	48	43	38	35	32	29	27	25	24	22	21	20	19
39,000	29,250	29,250	30	11,700	17,550	26,325	49	44	39	36	33	30	28	26	24	23	22	20	19
40,000	30,000	30,000	32	12,000	18,000	27,000	51	45	40	37	34	31	29	27	25	24	22	21	20

AERIAL CAMERA COVERAGE AND INTERVAL TABLE—Continued

24-INCH LENS, 9- BY 9-INCH PLATE

Altitude above terrain	Longitudinal ground coverage	Lateral ground coverage	Square mile area covered	Ground advance between exposures 60 percent overlap	Lateral coverage 40 percent overlap	Lateral coverage 10 percent overlap	Ground speed (mph) 160	180	200	220	240	260	280	300	320	340	360	380	400
							Exposure interval (seconds)												
			Acres																
1,000	375	375	3	150	225	337	.6	.5	.5	.4	.4	.3	.3	.3	.3	.3	.2	.2	.2
2,000	750	750	12	300	450	675	1.2	1.1	1	.9	.8	.7	.7	.6	.6	.6	.5	.5	.5
3,000	1,125	1,125	29	450	675	1,012	1.9	1.7	1.5	1.3	1.2	1.1	1	1	.9	.9	.8	.8	.7
4,000	1,500	1,500	51	600	900	1,350	2.5	2.2	2	1.8	1.7	1.5	1.4	1.3	1.2	1.2	1.1	1	1
5,000	1,875	1,875	80	750	1,125	1,687	3.1	2.8	2.5	2.3	2.1	1.9	1.8	1.7	1.5	1.5	1.4	1.3	1.2
6,000	2,250	2,250	116	900	1,350	2,025	3.8	3.4	3	2.7	2.5	2.3	2.1	2	1.9	1.8	1.7	1.6	1.5
7,000	2,625	2,625	158	1,050	1,575	2,362	4.4	3.9	3.5	3.2	2.9	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7
8,000	3,000	3,000	206	1,200	1,800	2,700	5.1	4.5	4	3.7	3.4	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2
9,000	3,375	3,375	261	1,350	2,025	3,037	5.7	5.1	4.6	4.1	3.8	3.5	3.2	3	2.8	2.7	2.5	2.4	2.3
10,000	3,750	3,750	322	1,500	2,250	3,375	6.3	5.6	5.1	4.6	4.2	3.9	3.6	3.4	3.1	3	2.8	2.6	2.5
11,000	4,125	4,125	390	1,650	2,475	3,712	7	6.2	5.6	5.1	4.6	4.3	4	3.7	3.5	3.3	3.1	2.9	2.8
12,000	4,500	4,500	464	1,800	2,700	4,050	7.6	6.8	6.1	5.5	5.1	4.7	4.3	4	3.8	3.6	3.4	3.2	3
13,000	4,875	4,875	545	1,950	2,925	4,387	8.3	7.3	6.6	6	5.5	5.1	4.7	4.4	4.1	3.9	3.6	3.4	3.3
14,000	5,250	5,250	632	2,100	3,150	4,725	8.9	7.9	7.1	6.5	5.9	5.5	5.1	4.7	4.4	4.2	3.9	3.7	3.5
			Square miles																
15,000	5,625	5,625	1.1	2,250	3,375	5,062	9.5	8.5	7.6	6.9	6.3	5.9	5.4	5.1	4.8	4.5	4.2	4	3.8
16,000	6,000	6,000	1.2	2,400	3,600	5,400	10	9	8.1	7.4	6.8	6.2	5.8	5.4	5.1	4.8	4.5	4.3	4
17,000	6,375	6,375	1.4	2,550	3,825	5,737	10	9.6	8.6	7.9	7.2	6.6	6.2	5.7	5.4	5.1	4.8	4.5	4.3
18,000	6,750	6,750	1.6	2,700	4,050	6,075	11	10	9.2	8.3	7.6	7	6.5	6.1	5.7	5.4	5.1	4.8	4.6
19,000	7,125	7,125	1.8	2,850	4,275	6,412	12	10	9.7	8.8	8	7.4	6.9	6.4	6	5.7	5.3	5.1	4.8
20,000	7,500	7,500	2	3,000	4,500	6,750	12	11	10	9.2	8.5	7.8	7.3	6.8	6.3	6	5.6	5.3	5.1

21,000	7, 875	7, 875	2. 2	3, 150	4, 725	7, 087	13	11	10	9. 7	8. 9	8. 2	7. 6	7. 1	6. 7	6. 3	5. 9	5. 6	5. 3
22,000	8, 250	8, 250	2. 4	3, 300	4, 950	7, 425	14	12	11	10	9. 3	8. 6	8. 0	7. 5	7	6. 6	6. 2	5. 9	5. 6
23,000	8, 625	8, 625	2. 6	3, 450	5, 175	7, 762	14	13	11	10	9. 8	9	8. 4	7. 8	7. 3	6. 9	6. 5	6. 1	5. 8
24,000	9, 000	9, 000	2. 9	3, 600	5, 400	8, 100	15	13	12	11	10	9. 4	8. 7	8. 1	7. 6	7. 2	6. 8	6. 4	6. 1
25,000	9, 375	9, 375	3. 1	3, 750	5, 625	8, 437	15	14	12	11	10	9. 8	9. 1	8. 5	7. 9	7. 5	7. 1	6. 7	6. 3
26,000	9, 750	9, 750	3. 4	3, 900	5, 850	8, 775	16	14	13	12	11	10	9. 4	8. 8	8. 3	7. 8	7. 3	6. 9	6. 6
27,000	10, 125	10, 125	3. 6	4, 050	6, 075	9, 112	17	15	13	12	11	10	9. 8	9. 2	8. 6	8. 1	7. 6	7. 2	6. 9
28,000	10, 500	10, 500	3. 9	4, 200	6, 300	9, 450	17	15	14	13	11	11	10	9. 5	8. 9	8. 4	7. 9	7. 5	7. 1
29,000	10, 875	10, 875	4. 2	4, 350	6, 525	9, 787	18	16	14	13	12	11	10	9. 8	9. 2	8. 7	8. 2	7. 8	7. 4
30,000	11, 250	11, 250	4. 5	4, 500	6, 750	10, 125	19	17	15	13	12	11	10	10	9. 5	9	8. 5	8	7. 6
31,000	11, 625	11, 625	4. 8	4, 650	6, 975	10, 462	19	17	15	14	13	12	11	10	9. 9	9. 3	8. 8	8. 3	7. 9
32,000	12, 000	12, 000	5. 1	4, 800	7, 200	10, 800	20	18	16	14	13	12	11	10	10	9. 6	9	8. 6	8. 1
33,000	12, 375	12, 375	5. 4	4, 950	7, 425	11, 137	21	18	16	15	14	12	12	11	10	9. 9	9. 3	8. 8	8. 4
34,000	12, 750	12, 750	5. 8	5, 100	7, 650	11, 475	21	19	17	15	14	13	12	11	10	10	9. 6	9. 1	8. 6
35,000	13, 125	13, 125	6. 1	5, 250	7, 875	11, 812	22	19	17	16	14	13	12	11	11	10	9. 9	9. 4	8. 9
36,000	13, 500	13, 500	6. 5	5, 400	8, 100	12, 150	23	20	18	16	15	14	13	12	11	10	10	9. 6	9. 2
37,000	13, 875	13, 875	6. 9	5, 550	8, 325	12, 487	23	21	18	17	15	14	13	12	11	11	10	9. 9	9. 4
38,000	14, 250	14, 250	7. 2	5, 700	8, 550	12, 825	24	21	19	17	16	14	13	12	12	11	10	10	9. 7
39,000	14, 625	14, 625	7. 6	5, 850	8, 775	13, 162	24	22	19	18	16	15	14	13	12	11	11	10	9. 9
40,000	15, 000	15, 000	8	6, 000	9, 000	13, 500	25	22	20	18	17	15	14	13	12	12	11	10	10

APPENDIX IV

THEORY OF POLYCONIC PROJECTIONS

The contents of this appendix are based upon the explanation of the theory of the American polyconic projection beginning on page 3 in Bulletin 809, Formulas and Tables for the Construction of Polyconic Projections, a publication of the U. S. Geological Survey.

1. Clarke's spheroid.—The data in the tables of appendix V for the polyconic projection of maps are based on the dimensions of the spheroid determined by Col. A. R. Clarke, R. E., in 1866, as expressed by him in meters but not in feet. In these tables, the data are merely converted from measurements on the spheroid in meters, given in U. S. Coast and Geodetic Survey Special Publication 5, to inches on several map scales employed by the United States Geological Survey and other mapping agencies. Some interpolation has been required in order to provide data for arguments for use in the construction of standard projections of 7½-minute and 15-minute quadrangles, such as latitude and longitude intervals of 1¼ minutes, 2½ minutes, 3¾ minutes, and 7½ minutes. Interpolation has also been employed in the conversion of the data, which may have resulted in errors of 0.001 inch in the tables, but 0.001 inch cannot be plotted.

Tables are given for latitudes 0° to 51° for the following scales: 1:48,000; 1:31,680; and 1:24,000. The tables for the 1:20,000 scale are for latitudes 0° to 72°. As the computation of special projections may be required, the fundamental formulas and demonstrations of their development are given with instructions for their use. The nomenclature employed in the formulas given in different publications on this subject differs, and in some demonstrations of the development of the formulas there may be some doubt as to the meaning of the symbols employed and some confusion in the use of mathematical expressions, such as an arc expressed in terms of the radius. An attempt has therefore been made to explain fully the meaning of each symbol or expression and to make the demonstrations and the instructions as to the use of the formulas so clear that a cartographer with only average knowledge of mathematics can follow them. In these demonstrations the following publications have been consulted freely and to some extent are quoted verbatim: United States Coast and Geodetic Survey Special Publications 5 and 57, Smithsonian Geographic Tables, and United States Geological Survey Bulletins 50 and 650.

Clarke expressed the dimensions of the spheroid in meters and also in English feet. According to him 1 meter=39.370432 inches=3.28086933 feet. The Smithsonian Geographic Tables and United States Geological Survey Bulletin 50, both prepared by R. S. Woodward, depend on the Clarke spheroid as expressed by him in feet. Some of the tables given in United States Geological Survey Bulletin 650 are extracts from the Smithsonian Geographic Tables and some are extracts from the United States Coast and Geodetic Survey tables. The polyconic projection tables computed by the United States Coast and Geodetic Survey depend on the dimensions of the spheroid as expressed by Clarke in meters, and the tables given herein depend on these dimensions and on the legal value in the United States of 1 meter=39.37 inches=3.28083333 feet. This figure does not express the absolutely correct relation between the international meter and the inch, but it is close enough for all practical purposes of map projection. Therefore, in order to reduce the dimensions of the spheroid as given by Clarke and Woodward in feet, and any tables of length based thereon, to corresponding values given in the United States Coast and Geodetic Survey Tables and those in this publication, it is necessary to multiply by the fraction $\frac{39.37}{39.370432}=0.99998903$ (log. 9.99999523–10).

a. Constants of the generating ellipse.—The constants of the generating ellipse of a spheroid for which values are required in the computation of projection tables are defined as follows:

a=semimajor axis.
b=semiminor axis.
e=eccentricity.

$$n=\frac{a-b}{a+b}=\frac{1-\sqrt{1-e^2}}{1+\sqrt{1-e^2}}$$

The values of these constants with their logarithms for the Clarke spheroid of 1866 expressed in meters as used in computing the tables in this publication are:

$a=6{,}378{,}206.4$ meters.	$\log a=6.8046985690$.
$b=6{,}356{,}583.8$ meters.	$\log b=6.8032237768$.
$e^2=0.0067686580$.	$\log e^2=7.8305025710-10$.
$n=0.0016979157$.	$\log n=7.2299161198-10$.

b. Radii of curvature.—The principal radii of curvature of an ellipsoid (see fig. 11) are

ρ_m=the radius of curvature of a meridional section.

ρ_n=the radius of curvature of a section normal to the meridian.

Both are constant for a given latitude, but for precise computations infinitely small sections of the circumference of the meridional ellipse must be considered, because meridional arcs cover a range of latitude, and therefore ρ_m must be evaluated for infinitely small changes in latitude.

In figure 11, let APP′D represent a quadrant of the generating ellipse; AQQ′B, a quadrant of the circumscribed circle; EFF′D, a quadrant of the inscribed circle; P and P′, two contiguous points on the ellipse at the ends of the infinitely small arc *d*s; PK and P′K $(=\rho_m)$, the normals at P and P′, or the radius of curvature of the infinitely small meridional arc *d*s; PK′ $(=\rho_n)$, the radius of curvature of a section normal to the meridian; OA (=a), the semimajor axis; OD (=b), the semiminor axis; the angle XRP=ϕ, the latitude of the point P; and the angle XOQ=ψ, the geocentric latitude of the point P.

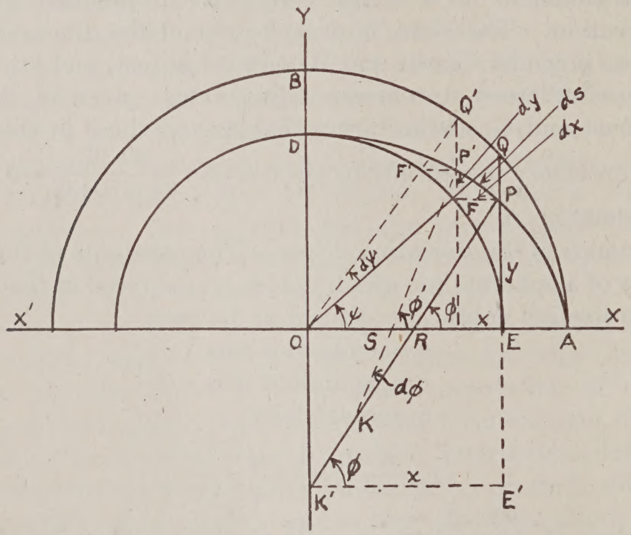

FIGURE 11.—Elements of generating ellipse.

Expressing the coordinates of the point P in parametric form, w have

$$x = a \cos \psi$$

$$y = b \sin \psi$$

As the point moves from P to P′ the small changes in x and y ar PF $(=-dx)$ and FP′ $(=dy)$, respectively. If the two equations ar differentiated, ψ being regarded as a variable angle and x and y a functions of ψ, then

$$dx = -a \sin \psi \, d\psi$$

$$dy = \quad b \cos \psi \, d\psi$$

The triangles RPE and PP′F are similar and the angle PP′F = angle PRE $=\phi$, therefore

$$\tan\phi=\frac{-dx}{dy}.$$

Substituting the values of *d*x and *d*y, we have

$$\tan\phi=\frac{a\sin\psi}{b\cos\psi}=\frac{a}{b}\tan\psi$$

or

$$\tan\psi=\frac{b}{a}\tan\phi$$

The eccentricity of the ellipse, represented by e, is defined by the equation

$$e^2=\frac{a^2-b^2}{a^2}=1-\frac{b^2}{a^2}$$

or

$$\frac{b^2}{a^2}=1-e^2$$

and

$$\frac{b}{a}=\sqrt{1-e^2}$$

Substituting this value, we have

$$\tan\psi=\sqrt{1-e^2}\tan\phi$$

but

$$\sin\psi=\tan\psi\cos\psi=\frac{\tan\psi}{\sec\psi}=\frac{\tan\psi}{\sqrt{1+\tan^2\psi}}=\frac{\sqrt{1-e^2}\tan\phi}{\sqrt{1+\tan^2\phi-e^2\tan^2\phi}}=$$

$$\frac{\sqrt{1-e^2}\,\frac{\sin\phi}{\cos\phi}}{\sqrt{1+\frac{\sin^2\phi}{\cos^2\phi}-e^2\,\frac{\sin^2\phi}{\cos^2\phi}}}=\frac{\frac{\sqrt{1-e^2}\sin\phi}{\cos\phi}}{\frac{\sqrt{\cos^2\phi+\sin^2\phi-e^2\sin^2\phi}}{\cos\phi}}=\frac{\sqrt{1-e^2}\sin\phi}{\sqrt{1-e^2\sin^2\phi}}$$

and

$$\cos\psi=\frac{\sin\psi}{\tan\psi}=\frac{1}{\sqrt{1+\tan^2\psi}}=\frac{1}{\sqrt{1+\tan^2\phi-e^2\tan^2\phi}}=$$

$$\frac{1}{\sqrt{1+\frac{\sin^2\phi}{\cos^2\phi}-e^2\,\frac{\sin^2\phi}{\cos^2\phi}}}=\frac{1}{\frac{\sqrt{\cos^2\phi+\sin^2\phi-e^2\sin^2\phi}}{\cos\phi}}=\frac{\cos\phi}{\sqrt{1-e^2\sin^2\phi}}.$$

Using the fundamental differential formula *d* tan x = sec² x *d*x, we have

$$\sec^2\psi\,d\psi=d\tan\psi$$

Substituting the value of tan ψ and differentiating, we have

$$\sec^2\psi\, d\psi=\sqrt{1-e^2}\,\sec^2\phi\, d\phi$$

or

$$d\psi=\frac{\sqrt{1-e^2}\,\sec^2\phi\, d\phi}{\sec^2\psi}=\sqrt{1-e^2}\,\sec^2\phi\, d\phi\cos^2\psi=\frac{\cos^2\phi\sqrt{1-e^2}\,\sec^2\phi\, d\phi}{1-e^2\sin^2\phi}=$$

$$\frac{\sqrt{1-e^2}\, d\phi}{1-e^2\sin^2\phi}$$

Let ds denote the infinitely small meridional arc PP′ of the generating ellipse; ρ_m=PK, the radius of curvature of the small arc; and $d\phi$ the angle PKP′, expressed in circular measure, through which the end of the radius moves in generating the small arc. Then considering the infinitely small arc of the ellipse as an arc of a circle and using the relation arc=radius times generating angle, we get

$$\rho_m\, d\phi=ds.$$

But

$$ds=\sqrt{\overline{dx}^2+\overline{dy}^2}=\sqrt{a^2\sin^2\psi+b^2\cos^2\psi}\, d\psi=$$

$$\sqrt{a^2\sin^2\psi+a^2(1-e^2)\cos^2\psi}\, d\psi=a\sqrt{\sin^2\psi+\cos^2\psi-e^2\cos^2\psi}\, d\psi=$$

$$a\sqrt{1-e^2\cos^2\psi}\, d\psi$$

also

$$\sqrt{1-e^2\cos^2\psi}=\sqrt{1-e^2\left(\frac{\cos^2\phi}{1-e^2\sin^2\phi}\right)}=\sqrt{\frac{1-e^2\sin^2\phi-e^2\cos^2\phi}{1-e^2\sin^2\phi}}=$$

$$\sqrt{\frac{1-e^2\,(\sin^2\phi+\cos^2\phi)}{1-e^2\sin^2\phi}}=\frac{\sqrt{1-e^2}}{\sqrt{1-e^2\sin^2\phi}}$$

and

$$d\psi=\frac{\sqrt{1-e^2}\, d\phi}{1-e^2\sin^2\phi}$$

therefore

$$\sqrt{1-e^2\cos^2\psi}\, d\psi=\frac{(1-e^2)\, d\phi}{(1-e^2\sin^2\phi)^{\frac{3}{2}}}$$

and

$$ds=\frac{a\,(1-e^2)\, d\phi}{(1-e^2\sin^2\phi)^{\frac{3}{2}}}$$

but

$$\rho_m=\frac{ds}{d\phi}$$

therefore

$$\rho_m=\frac{a\,(1-e^2)}{(1-e^2\sin^2\phi)^{\frac{3}{2}}}\text{ - - - - - - - - - - - - - - - - - - - [I]}$$

If we pass a plane through any point P on the ellipsoid, parallel to the equatorial plane of the ellipsoid, this plane intersects the ellipsoid in a circle which represents the parallel at the point P, and the normals to the surface of the ellipsoid at every point on this parallel circle intersect in a point K′ on the minor axis of the ellipsoid. If we pass a plane through the normals of any two contiguous points on the parallel circle and then let these normals approach each other until they coincide, we obtain a plane tangent to the given parallel and perpendicular to the meridian at the point of tangency. The radius of curvature in this plane corresponding to a small arc of the parallel is represented by PK′, because the normals of each point on the arc intersect at K′. If we denote this radius by ρ_n we have in the triangle PK′E′,

$$\cos \phi = \frac{x}{\rho_n}$$

Hence

$$\rho_n = \frac{x}{\cos \phi} = \frac{a \cos \psi}{\cos \phi} = \frac{\frac{a \cos \phi}{\sqrt{1 - e^2 \sin^2 \phi}}}{\cos \phi} = \frac{a}{(1 - e^2 \sin^2 \phi)^{\frac{1}{2}}} \text{------} [II]$$

It is evident that ρ_n is always greater than ρ_m except when $\phi = \pm 90°$; in that event $\rho_n = \rho_m$.

Logarithms of ρ_m and ρ_n in English feet are given in the Smithsonian Geographic Tables for each minute from 0° to 90° and in Geological Survey Bulletin 50 for each minute from 21° to 51°; to reduce these logarithms to logarithms of the radii expressed in American feet to correspond to the relation with the legal value of the meter in the United States, 47.7 in the last (7th) place must be subtracted. To reduce logarithms of American feet to logarithms of meters (United States legal value) the logarithm 9.48401583–10 should be added. Consequently the logarithms given in the Smithsonian Geographic Tables or in Geological Survey Bulletin 50 may be used for computations of formulas and tables given in the present publication by adding the logarithm 9.48401106–10.

However, in connection with geodetic computations the Coast and Geodetic Survey has adopted several factors based on the Clarke spheroid as expressed in meters (United States legal value), and it is more convenient to use two of these factors, log A and log B, than to use the values of ρ_m and ρ_n given in the Smithsonian Geographic Tables. The logarithms of these factors have been computed to the seventh place for each minute from 0° to 72° and are given in Geological Survey Bulletin 650 and in Coast and Geodetic Survey Special Publication 8. These factors are

$$A=\frac{(1-e^2 \sin^2 \phi)^{\frac{3}{2}}}{a \text{ arc } 1''}$$

$$B=\frac{(1-e^2 \sin^2 \phi)^{\frac{3}{2}}}{a\ (1-e^2) \text{ arc } 1''}$$

Introducing these factors into the formulas for ρ_m and ρ_n given above, we have

$$\rho_m=\frac{1}{B \text{ arc } 1''}\text{-------------------}[\text{III}]$$

$$\rho_n=\frac{1}{A \text{ arc } 1''}\text{--------------------}[\text{IV}]$$

In these factors arc 1″ is expressed in radians[1] and is 0.0000048481368 log arc 1″=4.6855748668–10, which is the same as log sin 1″ to the tenth decimal place.

c. Meridional arcs.—The length of an arc of a circle equals the length of its radius times the length of the arc expressed in radians. If a very short section of a meridional ellipse is considered as an arc of a circle, the length of this short section can be found by the use of simple formulas with sufficient exactness for use in ordinary large-scale map projections. But if it is desired to find the length of a long arc or to determine exactly the length of a short arc, it is necessary to take the summation of the lengths of the infinitely small arcs making up the arc whose length is desired, by the process of integrating between the limiting parallels the variable lengths of the small arcs corresponding to infinitely small uniform subdivisions of the difference of latitude.

The length of a short meridional arc lying between two given parallels of latitude can be computed by the simple formulas given below, in which

ϕ_1 and ϕ_2 are the latitudes, expressed in degrees, minutes, and seconds, of the ends of the arc.

$\phi=\frac{1}{2}(\phi_1+\phi_2)$ and is the mean latitude of the arc.

$\Delta\phi=\phi_2-\phi_1$ and is here taken as the length of the arc expressed in radians.

---

[1] A radian is an arc of a circle equal to its radius and is a unit arc in circular measure. Its value in degrees is $\frac{360}{2\pi}$, which equals 57°.29577951 or 3437′.746771 or 206264″.80625.

$\Delta\phi' = \phi_2 - \phi$ and is here taken as the length of the arc expressed in minutes.

Arc $1' = 0.0002908882$ radian, or the length of an arc of $1'$ for a unit radius.

ΔM is the required length of the arc, or the meridional distance expressed in meters. Then, as the length of the arc equals the length of the radius times the arc expressed in radians,

$$\Delta M = \rho_m \Delta\phi = \rho_m \text{ arc } 1' \, \Delta\phi'$$

But

$$\rho_m = \frac{1}{B \text{ arc } 1''}$$

therefore

$$\Delta M = \frac{\text{arc } 1' \Delta\phi'}{\text{arc } 1'' B} = \frac{60 \Delta\phi'}{B} \text{------------------} [V]$$

Log 60=1.7781513. Log B for the mean latitude ϕ is given for each minute of latitude in table 28, Geological Survey Bulletin 650, and in Coast and Geodetic Survey Special Publication 8. The approximate formula for ΔM should not be used for arcs of the meridian longer than 1°. The error will depend on the latitude but for 1° will be approximately +0.8 meter, for 30′ about +0.4 meter, for 15′ about +0.2 meter, and for 7½′ about +0.1 meter. The latitude, the scale, and the size of the projection will control largely the selection of formulas.

For the computation of the length of a long meridional arc or the precise computation of a short arc, a formula must be used which will give the sum of the varying lengths corresponding to infinitely small subdivisions of the difference of latitude. In other words, the approximate formula $\Delta M = \rho_m \Delta\phi$ must be integrated between the limits of the latitudes of the ends of the arc. The expression will be integrated first in general form between latitude 0° and any latitude ϕ.

$d\phi$=an infinitely small difference in latitude, or the differential of the latitude.

M=the length of the arc in meters, from the Equator to latitude ϕ. Using the value of ρ_m given in [I], we have

$$M = \int_0^{\phi} \frac{a(1-e^2)\, d\phi}{(1-e^2 \sin^2 \phi)^{\frac{3}{2}}}$$

Expanding the binomial reciprocal of the denominator, we have

$$(1-e^2\sin^2\phi)^{-\frac{3}{2}}=1+\frac{3}{2}e^2\sin^2\phi+\frac{15}{8}e^4\sin^4\phi+\frac{35}{16}e^6\sin^6\phi$$

$$+\frac{315}{128}e^8\sin^8\phi+\ \ldots\ldots$$

But,

$$\sin^2\phi=\frac{1}{2}(1-\cos 2\phi)=\frac{1}{2}-\frac{1}{2}\cos 2\phi$$

$$\sin^4\phi=\frac{3}{8}-\frac{1}{2}\cos 2\phi+\frac{1}{8}\cos 4\phi$$

$$\sin^6\phi=\frac{5}{16}-\frac{15}{32}\cos 2\phi+\frac{3}{16}\cos 4\phi-\frac{1}{32}\cos 6\phi$$

$$\sin^8\phi=\frac{35}{128}-\frac{7}{16}\cos 2\phi+\frac{7}{32}\cos 4\phi-\frac{1}{16}\cos 6\phi+\frac{1}{128}\cos 8\phi$$

Substituting these values and arranging the terms as constants and as coefficients of cos 2ϕ, cos 4ϕ, etc., we have

$$(1-e^2\sin^2\phi)^{-\frac{3}{2}}=\left(\overbrace{1+\frac{3}{4}e^2+\frac{45}{64}e^4+\frac{175}{256}e^6+\frac{11025}{16384}e^8+\ \ldots}^{A}\right)$$

$$-\left(\overbrace{\frac{3}{4}e^2+\frac{15}{16}e^4+\frac{525}{512}e^6+\frac{2205}{2048}e^8+\ \ldots}^{B}\right)\cos 2\phi$$

$$+\left(\overbrace{\frac{15}{64}e^4+\frac{105}{256}e^6+\frac{2205}{4096}e^8+\ \ldots}^{C}\right)\cos 4\phi$$

$$-\left(\overbrace{\frac{315}{512}e^6+\frac{315}{2048}e^8+\ \ldots}^{D}\right)\cos 6\phi$$

$$+\left(\overbrace{\frac{315}{16384}e^8+\ \ldots}^{E}\right)\cos 8\phi$$

$$-(\ .\ .\ .\ .\ .)$$

Then

$$M=\int_0^{\phi}a\,(1-e^2)\,[A-B\cos 2\phi+C\cos 4\phi-D\cos 6\phi+E\cos 8\phi-\ \ldots]d$$

But

$$\int m\,dx=mx+k \text{ and } \int m \cos nx\,dx=\frac{m}{n}\sin nx+k \left\{\begin{array}{l}\text{fundamental formulas in which}\\ m \text{ is a definite coefficient}\\ x \text{ is a variable quantity}\\ n \text{ is a coefficient of the variable}\\ k \text{ is a constant.}\end{array}\right.$$

Therefore

$$\int a\,(1-e^2)\,A\,d\phi=a(1-e^2)\,A\phi+k$$

$$\int a\,(1-e^2)\,B\cos 2\phi\,d\phi=a\,(1-e^2)\,B\frac{1}{2}\sin 2\phi+k$$

$$\int a\,(1-e^2)\,C\cos 4\phi\,d\phi=a\,(1-e^2)\,C\frac{1}{4}\sin 4\phi+k$$

$$\int a\,(1-e^2)\,D\cos 6\phi\,d\phi=a\,(1-e^2)\,D\frac{1}{6}\sin 6\phi+k$$

$$\int a\,(1-e^2)\,E\cos 8\phi\,d\phi=a\,(1-e^2)\,E\frac{1}{8}\sin 8\phi+k.$$

The value of M between the limits 0° and $\phi°$ is the difference between the integrals when $\phi=\phi°$ and when $\phi=0°$. If $\phi=0°$, then $\sin 2\phi$, $\sin 4\phi$, etc., $=0$, and the integral of each of the five terms given above is equal to k. In the subtraction of integrals all the k's cancel. Therefore,

$$M=a(1-e^2)\left[A\phi-\frac{1}{2}B\sin 2\phi+\frac{1}{4}C\sin 4\phi-\frac{1}{6}D\sin 6\phi\right.$$
$$\left.+\frac{1}{8}E\sin 8\phi-\;.\;.\;.\;.\right]$$

Substituting the values of A, B, C, D, and E, we get

$$\begin{aligned}M=a(1-e^2)\Bigg[&\left(1+\frac{3}{4}e^2+\frac{45}{64}e^4+\frac{175}{256}e^6+\frac{11025}{16384}e^8+\ .\ .\ .\ .\ \right)\phi\\&-\frac{1}{2}\left(\frac{3}{4}e^2+\frac{15}{16}e^4+\frac{525}{512}e^6+\frac{2205}{2048}e^8+\ .\ .\ .\right)\sin 2\phi\\&+\frac{1}{4}\left(\frac{15}{64}e^4+\frac{105}{256}e^6+\frac{2205}{4096}e^8+\ .\ .\ .\right)\sin 4\phi\\&-\frac{1}{6}\left(\frac{35}{512}e^6+\frac{315}{2048}e^8+\ .\ .\ .\ .\right)\sin 6\phi\\&+\frac{1}{8}\left(\frac{315}{16384}e^8+\ .\ .\ .\ .\right)\sin 8\phi\\&-\ .\ .\ .\ .\ .\ \Bigg]\end{aligned}$$

Let

$$A_0=a(1-e^2)\left(1+\frac{3}{4}e^2+\frac{45}{64}e^4+\frac{175}{256}e^6+\frac{11025}{16384}e^8+\ .\ .\ .\right)$$

$$=6{,}367{,}399.6891 \text{ meters.}$$

$$A_2=a(1-e^2)\left(\frac{3}{4}e^2+\frac{15}{16}e^4+\frac{525}{512}e^6+\frac{2205}{2048}e^8+\ .\ .\ .\right)$$

$$=32{,}433.8882 \text{ meters.}$$

$$A_4=\frac{1}{2}a(1-e^2)\left(\frac{15}{64}e^4+\frac{105}{256}e^6+\frac{2205}{4096}e^8+\ .\ .\ .\ .\right)=34.4187 \text{ meters.}$$

$$A_6=\frac{1}{3}a(1-e^2)\left(\frac{35}{512}e^6+\frac{315}{2048}e^8+\ .\ .\ .\ .\right)=0.0454 \text{ meters.}$$

$$A_8=\frac{1}{4}a(1-e^2)\left(\frac{315}{16384}e^8+\ .\ .\ .\ .\right)=0.00006 \text{ meters.}$$

Then

$$M=A_0\phi-\frac{1}{2}A_2\sin 2\phi+\frac{1}{2}A_4\sin 4\phi-\frac{1}{2}A_6\sin 6\phi+\frac{1}{2}A_8\sin 8\phi-\ .\ .\ .\ [V$$

This expression, in which ϕ is expressed in radians, gives the leng of the arc of the meridian (in meters, if a is taken in meters) from t Equator to the parallel at latitude ϕ. The length of the arc of t meridian represented by the difference between two values of ϕ found by taking the difference in the values of M for the two latitud

Let M_2=length of the arc of the meridian from the Equator to latitude ϕ_2.

M_1=length of the arc of the meridian from the Equator to latitude ϕ_1.

$\Delta M = M_2 - M_1$=length of the arc between latitudes ϕ_1 and ϕ_2.

$\phi = \frac{1}{2}(\phi_2 + \phi_1)$=mean latitude of the arc.

$\Delta\phi = \phi_2 - \phi_1$

Then

$$\Delta M = A_0(\phi_2 - \phi_1) - \frac{1}{2}A_2(\sin 2\phi_2 - \sin 2\phi_1) + \frac{1}{2}A_4(\sin 4\phi_2 - \sin 4\phi_1$$
$$- \frac{1}{2}A_6(\sin 6\phi_2 - \sin 6\phi_1) + \frac{1}{2}A_8(\sin 8\phi_2 - \sin 8\phi_1) - \ldots .$$

But

$$\sin\alpha - \sin\beta = 2\cos\frac{1}{2}(\alpha+\beta)\sin\frac{1}{2}(\alpha-\beta)$$

Substituting

$2\phi_2$, $4\phi_2$, etc., for α and $2\phi_1$, $4\phi_1$, etc., for β, we have

$$\begin{aligned}\Delta M = A_0(\phi_2 - \phi_1) &- \frac{1}{2}A_2\left[2\cos\frac{1}{2}(2\phi_2+2\phi_1)\sin\frac{1}{2}(2\phi_2-2\phi_1)\right]\\ &+ \frac{1}{2}A_4\left[2\cos\frac{1}{2}(4\phi_2+4\phi_1)\sin\frac{1}{2}(4\phi_2-4\phi_1)\right]\\ &- \frac{1}{2}A_6\left[2\cos\frac{1}{2}(6\phi_2+6\phi_1)\sin\frac{1}{2}(6\phi_2-6\phi_1)\right]\\ &+ \frac{1}{2}A_8\left[2\cos\frac{1}{2}(8\phi_2+8\phi_1)\sin\frac{1}{2}(8\phi_2-8\phi_1)\right]\end{aligned}$$

But

$$\frac{1}{2}(2\phi_2+2\phi_1) = 2\phi,\ \frac{1}{2}(4\phi_2+4\phi_1) = 4\phi, \text{ etc.}$$

and

$$\frac{1}{2}(2\phi_2-2\phi_1) = \Delta\phi,\ \frac{1}{2}(4\phi_2-4\phi_1) = 2\Delta\phi, \text{ etc.}$$

herefore

$$\begin{aligned}\Delta M = A_0\Delta\phi &- A_2\cos 2\phi\sin\Delta\phi + A_4\cos 4\phi\sin 2\Delta\phi\\ &- A_6\cos 6\phi\sin 3\Delta\phi + A_8\cos 8\phi\sin 4\Delta\phi - \ldots\ldots [\text{VII}]\end{aligned}$$

In the first term of the formula given above, $\Delta\phi$ is expressed in radian and the value of A_0 is 6,367,399.6891 meters. If it is desired to us the formula with $\Delta\phi$ expressed in degrees, minutes, or seconds, valu of A_0 must be taken as follows:

$$A^{\circ}{}_{o}=\frac{2\pi}{360}A_{o}=111{,}132.0894 \text{ meters} \qquad \log=5.0458394793$$

$$A'_{o}=\frac{2\pi}{21600}A_{o}=1{,}852.2015 \text{ meters} \qquad \log=3.2676882316$$

$$A''_{o}=\frac{2\pi}{1296000}A_{o}=30.8700 \text{ meters} \qquad \log=1.4895366$$

In computing lengths of arcs of the meridian for the projection tabl given in this publication, in which the arcs are taken in terms minutes, the following formula should be used, the last term contai ing A_8 being dropped:

$$\Delta M=1{,}852.2015\Delta\phi'-32{,}433.8882 \cos 2\phi \sin \Delta\phi+34.4187 \cos 4\phi \sin 2\Delta$$
$$-0.0454 \cos 6\phi \sin 3\Delta\phi+ \;.\;.\;.\;.\; \text{.....................} [\text{VII}$$

$$\log 1{,}852.2015=3.2676882316$$
$$32{,}433.8882=4.5109990154$$
$$34.4187=1.5367944629$$
$$0.0454=8.6570559-10$$

d. Arcs of the parallel.—For computations of the length of the arc the parallel lying between two given meridians of longitude the fo mulas given below may be used, in which—

ϕ is the latitude of the parallel, expressed in degrees, minute and seconds.

r is the length of the radius of the parallel, expressed in meters.

ρ_n is the length of the radius of curvature of the section normal the meridian, expressed in meters.

λ_1 and λ_2 are the longitudes of the ends of the arc, expressed degrees, minutes, and seconds.

$\Delta\lambda=\lambda_2-\lambda_1$ and is the arc of the parallel expressed in degrees minutes or seconds, the unit depending on the formula used. fractional parts of degrees or minutes or seconds are required the must be expressed decimally.

ΔP is the required length of the arc expressed in meters.

The radius of any parallel is equal to the product of the radius curvature of the normal section for the same latitude by the cosi of that latitude, as is seen in figure 12 in the triangle PK′M, in whic

$\cos \phi=\frac{r}{\rho_n}.$ Therefore

$$r=\rho_n \cos \phi$$

and the entire length of the parallel is

$$2\pi r = 2\pi\rho_n \cos\phi$$

Any arc of the parallel is equal to the entire length of the parallel divided by the number of units in the circumference and multiplied by the number of the same units in the arc. Therefore

$$\Delta P = \frac{2\pi\rho_n \cos\phi}{360}\,(\Delta\lambda \text{ in degrees})$$

But

$$\rho_n = \frac{1}{A \text{ arc } 1''}$$

therefore

$$\Delta P = \left(\frac{2\pi}{360 \text{ arc } 1''}\right)\left(\frac{\cos\phi}{A}\right)(\Delta\lambda \text{ in degrees})$$

$$= \left(\frac{20\pi}{\text{arc } 1^\circ}\right)\left(\frac{\cos\phi}{A}\right)(\Delta\lambda \text{ in degrees})$$

But

$$\text{arc } 1^\circ = \frac{\pi}{180}\cdot \text{ and } \frac{20\pi}{\text{arc } 1^\circ} = \frac{20\pi}{\frac{\pi}{180}} = 3600$$

therefore

$$\left.\begin{array}{l} \Delta P \text{ (meters)} = 3600\,\dfrac{\cos\phi}{A}\,\Delta\lambda \text{ (degrees)} \\[2ex] \qquad = 60\,\dfrac{\cos\phi}{A}\,\Delta\lambda \text{ (minutes)} \\[2ex] \qquad = \dfrac{\cos\phi}{A}\,\Delta\lambda \text{ (seconds)} \end{array}\right\}\text{---------[IX]}$$

e. Rectangular coordinates.—In the polyconic system of map projection each parallel of latitude represented on the map appears as the developed circumference of the base of a right cone tangent to the spheroid along that parallel. Thus the parallel PN (fig. 12) and the arc P_1P_2 (fig. 13) will appear in projection as the arc of a circle PP_1P_2N (fig. 14) whose radius $GP_1 = l$ is equal to the slant height of the tangent cone PGN (fig. 12).

In constructing a map projection on this system the meridians and parallels are usually delineated by plotting and joining their points of intersection. The coordinates of these points may be expressed in the following manner (see figs. 13 and 14): For any parallel, as PP_1P_2N, take the origin P_1 at the intersection with the central meridian and let the rectangular axes of $Y(P_1G)$ and of $X(P_1Q)$ be respectively coincident with and perpendicular to this meridian.

Let $\Delta\lambda$ represent the difference of longitude between the central meridian and the next adjacent one; $\Delta P = P_1P_2$ the arc of the parallel between the central meridian and the next adjacent one; θ the angle at the apex of the developed tangent cone between the central meridian and the next adjacent one; ϕ the latitude of the parallel, which is also the angle at the apex of the tangent cone between a meridional element of the surface of the cone and its axis; l the slant height of the tangent cone and the radius of the developed parallel; r the radius of the parallel in the plane of the parallel; and ρ_n the radius of curvature at P_1 of the cross section of the ellipsoid through the point P_1 normal to the central meridian.

Then from figure 14, in the triangle GP_2S, it is apparent that

$$x = l \sin\theta$$

and in the triangle P_1P_2S that

$$y = x \tan\frac{\theta}{2}$$

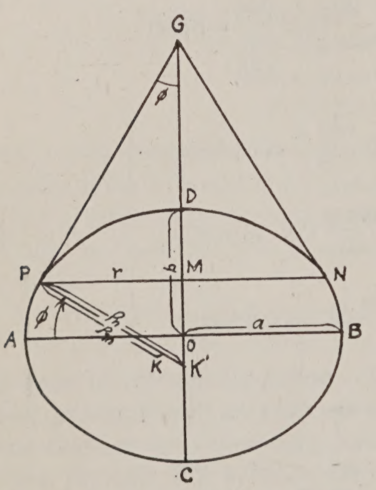

FIGURE 12.—Elements of ellipsoid and tangent cone.

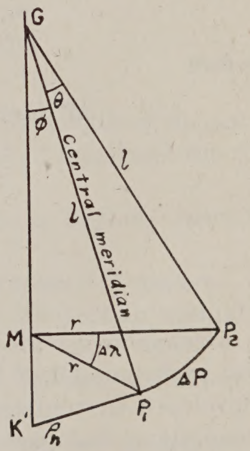

FIGURE 13.—Sector of tangent cone.

Substituting the value of x and remembering that $\sin\theta = 2\sin\frac{\theta}{2}\cos$ we have

$$y = 2l\sin^2\frac{\theta}{2}$$

From figure 13, in the triangle GP_1K', it is apparent that

$$l = \rho_n \cot\phi$$

The length of the arc ΔP (fig. 13) is measured by the length of the radius r of the parallel times the central angle $\Delta\lambda$ (in radians), and the same arc is also measured by the length l of the radius of the developed cone times the angle θ (in radians); therefore

$$l\theta = r\Delta\lambda$$

But from figure 13, in the triangle $P_1K'M$, it is apparent that $r=\rho_n \cos\phi$; therefore

$$\theta=\frac{\rho_n\Delta\lambda\cos\phi}{l}.$$

Substituting in this the value of l given above, we have

$$\theta=\Delta\lambda\sin\phi$$

Then, substituting in the expressions for x and y the values of l and θ, we have

$$x=\rho_n\cot\phi\sin(\Delta\lambda\sin\phi)=\frac{\cot\phi\sin(\Delta\lambda\sin\phi)}{A\text{ arc }1''}\text{ -----[X]}$$

$$y=2\rho_n\cot\phi\sin^2\frac{1}{2}(\Delta\lambda\sin\phi)=\frac{2\cot\phi\sin^2\frac{1}{2}(\Delta\lambda\sin\phi)}{A\text{ arc }1''}\text{ --[XI]}$$

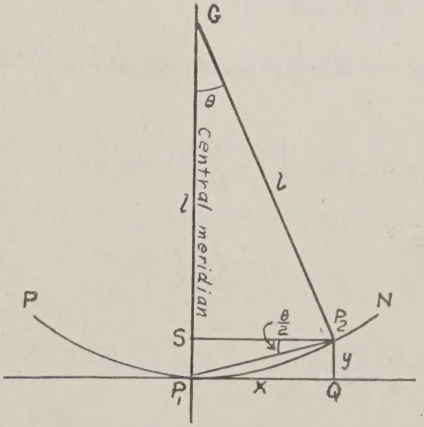

FIGURE 14.—Developed cone.

In the two formulas given above the expression $\Delta\lambda\sin\phi$ is approximately the convergence of the meridian, and it will give an angle in the same units as are used for $\Delta\lambda$. For example, if $\Delta\lambda$ is taken in radians, degrees, or minutes the angle $(\Delta\lambda\sin\phi)$ will be in radians, degrees, or minutes, respectively. The expression $\sin\phi$ is really a coefficient of $\Delta\lambda$ just as if it were a quantity like 2 or 4.

Log A is given for each minute of latitude from 0° to 72° in Table 28, Geological Survey Bulletin 650, and in Coast and Geodetic Survey Special Publication 8.

Log arc $1''=4.6855749-10$.

The formulas for x and y given above are exact expressions of the coordinates of the point P. But when $\Delta\lambda$ is small substitution for the quantities $\sin(\Delta\lambda \sin\phi)$ and $\sin^2\frac{1}{2}(\Delta\lambda\sin\phi)$ of the first two terms of their expansions will yield formulas more convenient to use and at the same time give satisfactory results. These expressions are

$$\sin(\Delta\lambda\sin\phi)=\Delta\lambda\sin\phi-\frac{1}{6}(\Delta\lambda\sin\phi)^3+\;.\;.\;.\;.\;.$$

$$\sin^2\frac{1}{2}(\Delta\lambda\sin\phi)=\frac{1}{4}(\Delta\lambda\sin\phi)^2-\frac{1}{48}(\Delta\lambda\sin\phi)^4+\;.\;.\;.\;.$$

Substituting these values in the formulas for x and y, we have

$$x=\rho_n\cot\phi\,\Delta\lambda\sin\phi-\frac{1}{6}\rho_n\cot\phi\,(\Delta\lambda\sin\phi)^3+\;.\;.\;.\;.\;.$$

But $\cot\phi\sin\phi=\cos\phi$; therefore

$$x=\rho_n\Delta\lambda\cos\phi-\frac{1}{6}\rho_n\Delta\lambda\cos\phi\,(\Delta\lambda\sin\phi)^2+\;.\;.\;.\;.$$

or

$$x=\rho_n\Delta\lambda\cos\phi\left[1-\frac{1}{6}(\Delta\lambda\sin\phi)^2+\;.\;.\;.\;.\right]$$

But

$$\rho_n=\frac{1}{A\text{ arc }1''}$$

therefore

$$x=\frac{\Delta\lambda\cos\phi}{A\text{ arc }1''}\left[1-\frac{1}{6}(\Delta\lambda\sin\phi)^2+\;.\;.\;.\;.\right]\text{- - - - - - - -}[\text{XII}]$$

also

$$y=2\rho_n\cot\phi\,\frac{1}{4}(\Delta\lambda\sin\phi)^2-2\rho_n\cot\phi\,\frac{1}{48}(\Delta\lambda\sin\phi)^4+\;.\;.\;.\;.$$

$$=\frac{1}{2}\rho_n\Delta\lambda^2\sin\phi\cos\phi-\frac{1}{24}\rho_n\Delta\lambda^2\sin\phi\cos\phi\,(\Delta\lambda\sin\phi)^2+\;.\;.\;.$$

$$=\frac{1}{2}\rho_n\Delta\lambda^2\sin\phi\cos\phi\left[1-\frac{1}{12}(\Delta\lambda\sin\phi)^2+\;.\;.\;.\;.\right]$$

But

$$\sin\phi\cos\phi=\frac{1}{2}\sin 2\phi \text{ and } \rho_n=\frac{1}{A \text{ arc } 1''}$$

therefore

$$y=\frac{\Delta\lambda^2\sin 2\phi}{4A \text{ arc } 1''}\left[1-\frac{1}{12}(\Delta\lambda\sin\phi)^2+\ .\ .\ .\ .\right]\text{------[XIII]}$$

In these two formulas for x and y $\Delta\lambda$ is expressed in radians. $\Delta\lambda$ may be taken in seconds, minutes, or degrees by using the following relations:

$$\Delta\lambda^{r}=\Delta\lambda'' \text{ arc } 1''$$

$$\Delta\lambda^{r}=\Delta\lambda' \text{ arc } 1'=60\ \Delta\lambda' \text{ arc } 1''$$

$$\Delta\lambda^{r}=\Delta\lambda^{\circ} \text{ arc } 1^{\circ}=3600\ \Delta\lambda^{\circ} \text{ arc } 1''$$

and the formulas may be written as follows by substituting in the coefficient the proper value of $\Delta\lambda$ expressed in terms of arc 1'', so as to cancel the term arc 1'' in the denominator, and by substituting in the series the proper value of $\Delta\lambda$ expressed in terms of arc 1'', arc 1', or arc°, as the case may require:

$$\left.\begin{aligned}x&=\frac{\Delta\lambda''\cos\phi}{A}\left[1-\frac{1}{6}(\Delta\lambda'' \text{ arc } 1''\sin\phi)^2+\ .\ .\ .\ .\right]\\ y&=\frac{(\Delta\lambda'')^2\text{arc } 1''\sin 2\phi}{4A}\left[1-\frac{1}{12}(\Delta\lambda''\text{arc } 1''\sin\phi)^2+\ .\ .\ .\ .\right]\end{aligned}\right\}\begin{matrix}\Delta\lambda \text{ in}\\ \text{seconds}\end{matrix}\ \text{[XIV]}$$

$$\left.\begin{aligned}x&=\frac{60\Delta\lambda'\cos\phi}{A}\left[1-\frac{1}{6}(\Delta\lambda' \text{ arc } 1'\sin\phi)^2+\ .\ .\ .\ .\right]\\ y&=\frac{15(\Delta\lambda')^2\text{arc } 1'\sin 2\phi}{A}\left[1-\frac{1}{12}(\Delta\lambda'\text{arc } 1'\sin\phi)^2+.\ .\ .\ .\right]\end{aligned}\right\}\begin{matrix}\Delta\lambda \text{ in}\\ \text{minutes}\end{matrix}\ \text{[XV]}$$

$$\left.\begin{aligned}x&=\frac{3600\Delta\lambda^{\circ}\cos\phi}{A}\left[1-\frac{1}{6}(\Delta\lambda^{\circ}\text{arc } 1^{\circ}\sin\phi)^2+\ .\ .\ .\ .\right]\\ y&=\frac{900(\Delta\lambda^{\circ})^2\text{arc } 1^{\circ}\sin 2\phi}{A}\left[1-\frac{1}{12}(\Delta\lambda^{\circ}\text{arc } 1^{\circ}\sin\phi)^2+\ .\ .\ .\ .\right]\end{aligned}\right\}\begin{matrix}\Delta\lambda \text{ in}\\ \text{degrees}\end{matrix}\ \text{[XVI]}$$

The constants in these formulas with their logarithms are as follows:

arc 1'' = 0.0000048481 radian	log = 4.6855749 − 10
arc 1' = 0.0002908882 radian	log = 6.4637262 − 10
arc 1° = 0.0174532925 radian	log = 8.2418774 − 10

This group of formulas seems more complex than the formulas for and y given in X and XI, but the terms are so arranged that their se will be found more convenient in making a large number of omputations, especially if the terms within the brackets can be ropped.

f. Analysis of formulas.—Analysis of the last group of formulas for x will show that for values of $\Delta\lambda$ of 1° or less and for latitudes of 60° or less the terms within the brackets can be disregarded with a resulting maximum error of +2.2 meters in the abscissa of the developed parallel. The ordinate of the developed parallel of 45° has the greatest value for the same value of $\Delta\lambda$, and for values of $\Delta\lambda$ of 1° or less the terms within the brackets in the formulas for y can be disregarded with a resulting maximum error of +0.007 meter. The following table gives an idea of the errors in the values of x and y resulting from the use of the first term only of these formulas:

Value of $\Delta\lambda$	Latitude 25°				Latitude 50°			
	60′	30′	15′	7½′	60′	30′	15′	7½′
Errors in x, in meters	+0. 915	+0. 114	+0. 014	+0. 002	+2. 121	+0. 267	+0. 033	+0. 004
Errors in y, in meters	+. 0017	+. 0001	+. 0000	+. 0000	+. 0071	+. 0004	+. 0000	+. 0000

Even the maximum error of 2.2 meters on the spheroid can not be plotted on any ordinary map projection; consequently where $\Delta\lambda$ does not exceed 60 minutes it is sufficient to use only the first term in the bracket in any one of the last group of formulas for x and y.

Analysis of the formula for ΔP and of the rigid formula for x shows that for short arcs of the parallel of 30′ or less and for latitudes of 50° or less there is very little difference between the actual lengths of the arcs of the parallels and the abscissas of their development, and that either formula may be used for the other. The following table gives an idea of these differences:

Value of $\Delta\lambda$	Latitude 25°			Latitude 50°		
	30′	15′	7½′	30′	15′	7½′
Value of ΔP, in meters	50, 475. 93	25, 237. 96	12, 618. 98	35, 849. 06	17, 924. 53	8, 962. 26
Value of x, in meters	50, 475. 82	25, 237. 95	12, 618. 98	35, 848. 79	17, 924. 50	8, 962. 26

2. Conversion data.—Values in meters on the spheroid can be transformed easily into measurements in inches on any map scale by reducing meters to inches and dividing the result by the scale relation. In the following table the two operations have been combined into one factor, and the table will be found convenient for use in conversion by logarithms or for use by direct multiplication in a computing machine. The tables are based on the United States legal value of 1 meter = 39.37 inches, log = 1.5951654.

Scale	Log to be added	Multiplication factor
1:5, 000	7. 8966954–10	0. 0078740000
1:10, 000	7. 5951654–10	. 0039370000
1:12, 000	7. 5159842–10	. 0032808333
1:20, 000	7. 2941354–10	. 0019685000
1:24, 000	7. 2149542–10	. 0016404167
1:31, 250	7. 1003154–10	. 0012598400
1:31, 680	7. 0943802–10	. 0012427399
1:48, 000	6. 9139242–10	. 0008202083
1:62, 500	6. 7992854–10	. 0006299200
1:63, 360	6. 7933502–10	. 0006213699
1:96, 000	6. 6128942–10	. 0004101042
1:125, 000	6. 4982554–10	. 0003149600
1:192, 000	6. 3118642–10	. 0002050521
1:250, 000	6. 1972254–10	. 0001574800
1:500, 000	5. 8961954–10	. 0000787400
1:750, 000	5. 7201041–10	. 0000524933
1:1, 000, 000	5. 5951654–10	. 0000393700

Other interesting data concerning scale relations will be found in tables 40 and 44, Geological Survey Bulletin 650.

3. Construction of projections.—*a. Different methods of construction.*—Polyconic projections may be constructed by hand, by using the instructions and tables published in Coast and Geodetic Survey Special Publication 5, which gives the required values in meters on he surface of the spheroid, or by using the instructions and tables given in this publication with measurements in inches on the map scale desired; or they may be constructed mechanically by means of a Bumstead projection plate. The practice of the Geological Survey ndicates preference in the reverse order from that given above. Directions for constructing projections by hand can be given best by means of practical examples, but in general a central meridian is ssumed upon which the intersections of the parallels are plotted to cale. Each parallel is then developed separately as an arc of a circle with its center lying in the extension of the central meridian. The rcs of the developed parallels are subdivided to scale, and the meridans are drawn through the corresponding subdivisions. However, in ctual practice on projections of small quadrangles the parallels are ot drawn as arcs of circles, but their intersections with the meridians are plotted from the computed x and y values, and the sections of the parallels between adjacent meridians are drawn as straight lines. On polyconic projections of quadrangles of 1° or smaller all meridians may be drawn as straight lines, and in large-scale projections of small quadrangles in low latitudes both meridians and parallels may be drawn as straight lines. For example, the curvature of the parallels of a projection of a 15′ quadrangle in latitudes from 0° to 25° on a scale of 1:48,000 or for a 7½′ quadrangle in any latitude on a scale of 1:31,680 or larger is so small that it can not be plotted.

The meridional distances given in the tables apply to the central meridian of the projection, but for any standard quadrangle the difference in the curvature of the several parallels is so slight that the distances given for the central meridian can be taken for all other meridians.

b. Geological Survey method.—For making a polyconic projection by the Geological Survey method it is necessary to have a metal straightedge graduated in inches, with one inch at one end subdivided into hundredths of an inch, the scale being standardized and the straightedge being as long as the longest dimension of the projection; a good rigid-beam compass with micrometer movement; a hard chisel-point pencil; a plotting needle; and the tables in this publication.

To illustrate this method the construction of a polyconic projection on a scale of 1:48,000 of the 15-minute quadrangle lying between north latitudes 40°15′ and 40°30′ and between west longitudes 88°00′ and 88°15′ is described. (See fig. 15.) The projection will show each 5-minute meridian and parallel. The central meridian of the projection will represent the meridian of longitude 88°07½′ and will be used for construction only. Likewise the perpendicular crossing the central meridian at latitude 40°22½′ will be used for construction only. The geometry of the construction given below is slightly different from previously established practice, owing principally to an effort to eliminate the plotting of the small ordinates of curvature, which is very difficult in a projection of a small quadrangle.

In table IV of appendix V the group of ordinates and meridional distances computed for latitude 40° may safely be used for all latitudes between 39°30′ and 40°30′ without interpolation between the values given and those computed for latitudes 39° and 41°. The meridional distance for 2½′ of latitude is found to be 3.796 inches; for 5′, 7.588 inches; for 7½′, 11.383 inches; for 10′, 15.179 inches; and for 15′, 22.766 inches. In the part of the table headed "Abscissas of developed parellel" the x values for 2½′ and 7½′ of longitude in latitude 40°15′ are found to be 2.908 inches and 8.723 inches, respectively. The x values for latitude 40°20′, 40°22½′, 40°25′, and 40°30′ are shown in figure 15. It should be noted that the measurements given here and on figure 15 were taken from an old table, and some of them contain small errors in the third decimal place, which have been corrected in table IV of appendix V. In the group of ordinates of developed parallel the y value for 7½′ of longitude is found to be 0.006 inch, and for 2½′ of longitude 0.001 inch. These are all the measurements needed to proceed with the construction of the projection. It is impossible to plot the y value for 2½′ of longitude and difficult to

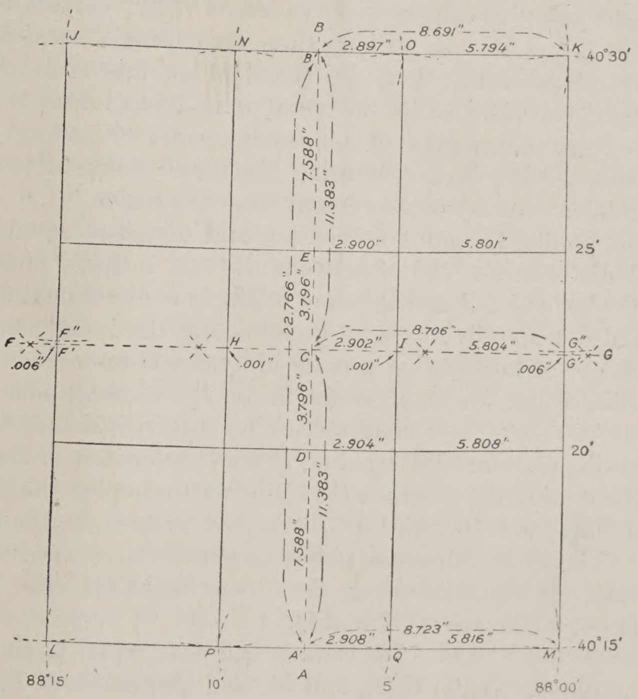
J
N
B
8.691″
2.897″
O
5.794″
K
40°30′
B′
7.588″
11.383″
2.900″
5.801″
25′
E
22.766″
3.796″
F
F″
F′
.006″
H
.001″
C
2.902″
8.706″
I
5.804″
.001″
.006″
G″
G′
G
3.796″
2.904″
5.808″
20′
D
11.383″
7.588″
2.908″
8.723″
5.816″
40°15′
L
P
A′
Q
M
A
88°15′
10′
5′
88°00′

FIGURE 15.—Polyconic projection of 15-minute quadrangle.

ake an individual plotting of the y value for 7½′ of longitude; but 006 can be added to or subtracted from any tabulated length of eridional arcs and the resultant distance measured on the metal ale, and this is done in the following description.

Draw the central construction meridian AB in vertical position ar the center of the map; select the mid-point C as the center of the ojection, and lay off from C the meridional distances for 2½′ and ′ of latitude—CE (3.796 inches) and CB′ (11.383 inches) above d CD (3.796 inches) and CA′ (11.383 inches) below. The over-all stance A′B′ (22.766 inches) for 15′ of latitude should be used to check the plotting. At the mid-point C erect the perpendicular FG, using the points A′ and B′ as centers for long arcs and the points D and E as centers for short arcs. Lay off on the construction line FG the abscissas of the developed parallel for 2½′ and 7½′ of longitude for latitude 40°22½′—CH and CI (2.902 inches) and CF′ and CG′ (8.706 inches).

With the points F′ and G′ as centers and a radius equal to the meridional distance for 7½′ of latitude plus the ordinate for 7½′ of longitude (11.383+0.006=11.389 inches), strike arcs at J and K. Then with the same points as centers and a radius of 11.377 (11.383−0.006) strike arcs at L and M. In striking these arcs use the metal point of the beam compass rather than the pencil point, and either scratch the paper lightly or place under the metal point a small piece of carbon paper made by rubbing a piece of thin tracing paper with a hard pencil. This obviates the inaccuracy of using the pencil point of the beam compass to take an exact measurement from the scale.

With the points H and I as centers and a radius equal to the meridional distance for 7½′ of latitude (11.383 inches), strike arcs at N and O above and P and Q below. The true meridional distance as here used is generally taken in constructing the inner meridional distance of 7½′ of latitude on a scale of 1:48,000 or larger, as it is impracticable to use the small ordinate for 2½′ of longitude. However, should the more rigid construction be required, it may be done in the following manner: With points H and I as centers and a radius equal to the meridional distance for 7½′ of latitude plus the ordinate for 2½′ of longitude (11.383+0.001=11.384 inches), strike arcs at N and O. Then with the same points as centers and a radius equal to the meridional distance minus the 2½′ ordinate (11.383−0.001= 11.382 inches), strike arcs at P and Q.

With the points B′ and A′ as centers and radii equal to the proper abscissas, strike arcs at J, K, L, and M, and also at N, O, P, and Q. Check the length of the diagonals JM and KL, which should be exactly the same. Draw the straight lines JL and KM through the intersections of the arcs at J, L, K, and M, and the straight lines NP and OQ through the intersections of the arcs at N, P, O, and Q. These lines represent the four meridians on the projection, and although theoretically they are curves concave to the central meridian, yet in practice they can be drawn only as straight lines. The four intersections at the top and the four at the bottom of the projection are the exact intersections of the four meridians with the limiting parallels.

With the beam compass set at the length of the meridional distance for 5′ of latitude, plot along all four meridians down from J, N, O, and K and up from L, P, Q, and M, and check the middle 5′ sections of the meridians, thus locating the intersections of the four meridians with the parallels 40° 20′ and 40° 25′.

All the necessary intersections for the projection of this 15′ quadrangle have now been plotted without trying to make an individual plotting of 0.006 inch from the points F′ and G′, which only the most skilled draftsmen can accomplish, and the same setting of the beam compass has been used for all equal measurements, thereby strengthening the construction.

Check the construction by measuring over-all distances and by testing corresponding diagonals of all combinations of projection blocks.

Although it is customary to show only the 5′ intervals on a projection for a 15′ quadrangle, it may be desired to develop the central parallel, which, in the projection under construction, would fall on latitude 40° 22½′. If so, proceed in the following manner: With the beam compass set at the meridional distance for 7½′ and plotting along the meridians down from J and K and checking by plotting up from L and M, locate the points F″ and G″, which are the intersections of the limiting meridians with the central parallel at latitude 40° 22½′. The points H and I already determined are the intersections of this arallel with the inner meridians, as no ordinates can be plotted at hese intersections. Draw the parallels by drawing straight lines etween the plotted intersections, as the curvature of the parallels f any standard quadrangle within the limits of the United States s too small to be drawn as a curve. Letter the latitude and longitude s shown in figure 15, add the scale, the name of the quadrangle, and he initials or name of the person making the construction, and the rojection is completed. It should, however, be checked carefully y another person.

In any projection where the ordinate of a developed parallel at the miting meridians is less than 0.005 inch it is impracticable to plot e curvature, and the parallels should be represented as straight nes perpendicular to the central meridian. This will be true of rojections of maps of standard 15′ quadrangles between latitudes 0° d 25° on the scale of 1:48,000 and of standard 7½′ quadrangles any latitude on scales of 1:31,680 and larger.

c. Interpolation for other scales.—Use of projections other than of the ales for which tables are included in appendix V, may be required, d any table may, with certain limitations, be used for scales half as large or twice as large. The abscissas of developed parallels and the meridional distances are both in direct proportion to the scales and practically in proportion to the latitude and longitude intervals, so that the abscissa for 2′ of longitude at latitude 40° on the scale of 1:24,000 is the same for 1′ of longitude at latitude 40° on the scale of 1:12,000. Likewise the meridional distance given for a latitude interval of 2′ on the scale of 1:24,000 is the same for 1′ on the scale of 1:12,000.

The ordinates of developed parallels are also directly proportional to the scales, but the ordinates are also proportional to the squares of the distances from the central meridian, which may lead to confusion in interpolation for a different scale. For example: For a longitude interval of 5′ in latitude 40° on a scale of 1:24,000 the ordinate of developed parallel is 0.0054 inch. The ordinate is not the same for a longitude interval of 2½′ on a scale of 1:12,000 but is 0.027, or one-half as much.

The following rules may develop discrepancies in the third decimal place, but these will be too small to plot: To halve the scale (for example, to make a projection on a scale of 1:48,000 from tables for the scale of 1:24,000), use correct arguments for the scale desired and divide all values given in the table by 2. To double the scale (for example, to make a projection on a scale of 1:12,000 from tables for the scale of 1:24,000), use correct arguments for the scale desired and multiply all values given in the table by 2.

Polyconic projections on scales for which no convenient tables are given with data in inches are best constructed directly from the data given in Coast and Geodetic Survey Special Publication 5, the dimensions in meters on the spheroid being reduced to meters on the map scale and plotted by means of a metric scale. Instructions for making projections by this method are given in Special Publication 5 and also in Geological Survey Bulletin 788–E.

APPENDIX V

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
0 00	3. 652	4. 565	9. 131	13. 696	18. 260	27. 391
02½	-----	-----	-----	------	------	------
03¾	-----	-----	-----	------	------	------
05	-----	-----	-----	------	------	------
07½	-----	-----	-----	------	------	------
10	-----	-----	-----	------	------	------
11¼	-----	-----	-----	------	------	------
12½	-----	-----	-----	------	------	------
15	-----	-----	-----	------	------	------
17½	-----	-----	-----	------	------	------
18¾	-----	-----	-----	------	------	------
20	-----	-----	-----	------	------	------
22½	-----	-----	-----	------	------	------
25	-----	-----	-----	------	------	------
26¼	-----	-----	-----	------	------	------
27½	-----	-----	-----	------	------	------
30	-----	-----	-----	------	------	------
32½	-----	-----	9. 130	------	------	27. 390
33¾	-----	-----	-----	------	------	------
35	-----	-----	-----	------	------	------
37½	-----	-----	-----	------	------	------
40	-----	-----	-----	13. 694	------	------
41¼	-----	-----	-----	------	18. 259	------
42½	-----	-----	-----	------	------	------
45	-----	-----	-----	------	------	27. 389
47½	-----	-----	-----	------	------	------
48¾	-----	-----	-----	------	------	------
50	-----	-----	-----	------	------	------
52½	-----	-----	-----	------	------	------
55	-----	-----	-----	------	------	27. 388
56¼	-----	-----	-----	------	------	------
57½	3. 652	-----	9. 130	------	------	27. 388

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 0: 1¼	4. 535	0. 000
2½	9. 088	. 000
3¾	13. 603	. 000
5	18. 137	. 000
6¼	22. 672	. 000
7½	27. 206	. 000
10	36. 275	. 000
12½	45. 343	. 000
15	54. 413	. 000

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
1 00	3. 652	4. 565	9. 130	13. 693	18. 258	27. 388
02½	-----	-----	-----	------	------	------
03¾	-----	-----	9. 128	------	------	27. 386
05	-----	-----	-----	------	------	------
07½	-----	-----	-----	------	------	------
10	-----	-----	-----	------	18. 257	------
11¼	-----	-----	-----	------	------	27. 385
12½	-----	-----	-----	------	------	------
15	-----	4. 564	-----	13. 692	------	------
17½	-----	-----	-----	------	------	27. 384
18¾	-----	-----	-----	------	------	------
20	-----	-----	-----	------	18. 256	------
22½	-----	-----	-----	------	------	------
25	-----	-----	9. 127	------	------	27. 383
26¼	-----	-----	-----	------	------	------
27½	-----	-----	-----	13. 691	------	------
30	3. 650	-----	-----	------	18. 254	------
32½	-----	-----	-----	------	------	27. 382
33¾	-----	-----	-----	------	------	------
35	-----	-----	-----	------	------	------
37½	-----	-----	-----	------	18. 253	27. 380
40	-----	-----	-----	13. 690	------	------
41¼	-----	-----	9. 126	------	------	27. 379
42½	-----	-----	-----	------	------	------
45	-----	-----	-----	------	18. 252	------
47½	-----	-----	-----	------	------	27. 378
48¾	-----	4. 562	-----	13. 688	------	------
50	-----	-----	-----	------	------	------
52½	-----	-----	-----	------	18. 251	27. 377
55	-----	-----	-----	------	------	------
56¼	-----	-----	9. 125	------	------	27. 376
57½	3. 650	4. 562	9. 125	13. 688	18. 251	27. 376

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 1: 1¼	4. 535	0. 000
2½	9. 068	. 000
3¾	13. 603	. 000
5	18. 137	. 000
6¼	22. 672	. 000
7½	27. 206	. 000
10	36. 275	. 001
12½	45. 344	. 001
15	54. 413	. 002

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel — Longitude interval 1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
2 00	3. 650	4. 562	9. 125	13. 687	18. 250	27. 374
02½	-----	-----	-----	------	------	------
03¾	-----	-----	-----	------	------	------
05	3. 649	-----	-----	------	18. 248	27. 373
07½	-----	-----	-----	13. 686	------	------
10	-----	-----	9. 124	------	------	27. 372
11¼	-----	-----	-----	------	18. 247	------
12½	-----	-----	-----	------	------	27. 371
15	-----	4. 561	-----	13. 685	------	------
17½	-----	-----	-----	------	18. 246	27. 370
18¾	-----	-----	-----	------	------	------
20	-----	-----	9. 122	------	------	------
22½	-----	-----	-----	13. 684	------	27. 368
25	-----	-----	-----	------	18. 245	27. 367
26¼	-----	-----	-----	------	------	------
27½	-----	-----	-----	------	------	27. 366
30	-----	-----	-----	13. 682	18. 244	------
32½	-----	-----	9. 121	------	------	27. 365
33¾	-----	-----	-----	------	18. 242	27. 364
35	3. 648	-----	-----	------	------	------
37½	-----	4. 560	-----	13. 681	------	27. 362
40	-----	-----	-----	------	18. 241	------
41¼	-----	-----	9. 120	------	------	27. 361
42½	-----	-----	-----	13. 680	------	------
45	-----	-----	-----	------	18. 240	27. 360
47½	-----	-----	-----	------	------	27. 359
48¾	-----	-----	-----	------	18. 239	------
50	-----	-----	-----	13. 679	------	------
52½	-----	-----	9. 119	------	18. 238	27. 358
55	3. 647	4. 559	-----	13. 678	------	27. 356
56¼	-----	-----	-----	------	------	27. 355
57½	-----	-----	-----	------	18. 236	------

Ordinate of developed parallel and meridional distances — Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 2: 1¼	4. 535	0. 000
2½	9. 068	. 000
3¾	13. 603	. 000
5	18. 138	. 000
6¼	22. 672	. 001
7½	27. 206	. 001
10	36. 275	. 001
12½	45. 344	. 002
15	54. 413	. 004

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
3 00	3. 647	4. 559	9. 118	13. 678	18. 236	27. 354	For latitude 3:		
02½	-----	-----	-----	13. 676	18. 235	27. 353	1¼	4. 535	0. 000
03¾	-----	-----	-----	------	------	------	2½	9. 068	. 000
05	-----	-----	-----	------	------	------	3¾	13. 603	. 000
07½	-----	-----	-----	13. 675	18. 234	27. 352	5	18. 138	. 001
							6¼	22. 673	. 001
10	-----	-----	9. 116	------	------	27. 350	7½	27. 208	. 001
11¼	-----	-----	-----	------	18. 233	27. 349	10	36. 276	. 002
12½	-----	4. 558	-----	13. 674	------	------	12½	45. 346	. 005
15	-----	-----	-----	------	18. 232	27. 348	15	54. 414	. 006
17½	-----	-----	9. 115	13. 673	------	27. 347			
18¾	3. 646	-----	-----	------	18. 230	27. 346			
20	-----	-----	-----	------	------	------			
22½	-----	-----	-----	13. 672	18. 229	27. 344			
25	-----	-----	9. 114	------	------	27. 343			
26¼	-----	-----	-----	------	18. 228	------			
27½	-----	-----	-----	------	------	27. 342			
30	-----	4. 556	-----	13. 670	18. 227	27. 341			
32½	-----	-----	9. 113	13. 669	------	27. 340			
33¾	-----	-----	-----	------	18. 226	27. 338			
35	-----	-----	-----	------	------	------			
37½	3. 644	-----	-----	13. 668	18. 224	27. 337			
40	-----	-----	9. 112	------	------	27. 336			
41¼	-----	-----	-----	------	18. 223	27. 335			
42½	-----	4. 555	-----	13. 667	------	------			
45	-----	-----	-----	------	18. 222	27. 334			
47½	-----	-----	9. 110	13. 666	18. 221	27. 332			
48¾	-----	-----	-----	------	------	27. 331			
50	-----	-----	-----	------	------	------			
52½	-----	-----	9. 109	13. 664	18. 220	27. 329			
55	3. 643	-----	-----	------	18. 218	27. 328			
56¼	-----	4. 554	-----	13. 663	------	------			
57½	-----	-----	-----	------	18. 217	27. 326			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1: 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
4 00	3. 643	4. 554	9. 108	13. 663	18. 217	27. 325
02½	-----	-----	-----	13. 662	18. 216	27. 324
03¾	-----	-----	-----	------	------	27. 323
05	-----	-----	-----	------	18. 215	27. 323
07½	-----	-----	9. 107	13. 661	18. 214	27. 322
10	-----	4. 553	-----	13. 660	------	27. 319
11¼	3. 642	-----	-----	------	18. 212	27. 319
12½	-----	-----	9. 106	------	18. 211	27. 318
15	-----	-----	-----	13. 658	18. 210	27. 317
17½	-----	-----	-----	13. 657	------	27. 316
18¾	-----	-----	9. 104	------	------	27. 314
20	-----	-----	-----	------	18. 209	27. 314
22½	-----	4. 552	-----	13. 656	------	27. 312
25	-----	-----	9. 103	------	18. 208	27. 311
26¼	3. 641	-----	-----	13. 655	18. 206	27. 310
27½	-----	-----	-----	------	------	27. 310
30	-----	-----	9. 102	13. 654	18. 205	27. 307
32½	-----	-----	-----	------	18. 204	27. 306
33¾	-----	4. 550	-----	13. 652	------	27. 306
35	-----	-----	-----	------	18. 203	27. 305
37½	-----	-----	9. 101	13. 651	18. 202	27. 304
40	3. 640	-----	-----	------	18. 200	27. 301
41¼	-----	-----	-----	13. 650	------	27. 301
42½	-----	-----	9. 100	------	------	27. 300
45	-----	4. 549	-----	13. 649	18. 199	27. 298
47½	-----	-----	9. 098	------	18. 198	27. 296
48¾	-----	-----	-----	13. 648	18. 197	27. 295
50	-----	-----	-----	------	------	27. 295
52½	-----	-----	9. 097	13. 646	18. 196	27. 293
55	3. 638	4. 548	-----	13. 645	18. 194	27. 292
56¼	-----	-----	-----	------	18. 193	27. 290
57½	-----	-----	9. 096	------	------	27. 289

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval.	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 4: 1¼	4. 535	0. 000
2¼	9. 070	. 000
3¾	13. 603	. 000
5	18. 138	. 000
6¼	22. 673	. 001
7½	27. 208	. 002
10	36. 277	. 004
12½	45. 346	. 006
15	54. 415	. 008

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1: 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
5 00	3. 638	4. 548	9. 096	13. 644	18. 192	27. 288
02½	-----	-----	-----	13. 643	18. 191	27. 287
03¾	-----	-----	9. 095	------	18. 191	27. 286
05	-----	-----	-----	------	18. 190	27. 284
07½	3. 637	4. 547	-----	13. 642	18. 188	27. 283
10	-----	-----	9. 094	13. 640	18. 188	27. 281
11¼	-----	-----	-----	------	18. 187	27. 280
12½	-----	-----	-----	13. 639	18. 186	27. 280
15	-----	-----	9. 092	------	18. 184	27. 277
17½	-----	4. 546	-----	13. 638	18. 184	27. 276
18¾	-----	-----	9. 091	13. 637	18. 184	27. 275
20	3. 636	-----	-----	------	18. 182	27. 274
22½	-----	-----	9. 090	13. 636	18. 181	27. 271
25	-----	4. 544	-----	13. 634	18. 180	27. 270
26¼	-----	-----	-----	------	18. 179	27. 269
27½	-----	-----	9. 089	------	18. 179	27. 268
30	-----	-----	-----	13. 633	18. 178	27. 266
32½	3. 635	-----	9. 088	13. 632	18. 176	27. 264
33¾	-----	-----	-----	------	18. 175	27. 264
35	-----	4. 543	-----	13. 631	18. 175	27. 263
37½	-----	-----	9. 086	------	18. 174	27. 260
40	-----	-----	-----	13. 630	18. 173	27. 259
41¼	-----	-----	-----	13. 628	18. 172	27. 258
42½	-----	-----	9. 085	------	18. 172	27. 257
45	3. 634	4. 542	-----	13. 627	18. 169	27. 254
47½	-----	-----	9. 084	13. 626	18. 168	27. 252
48¾	-----	-----	-----	------	18. 168	27. 252
50	-----	-----	-----	13. 625	18. 167	27. 251
52½	-----	-----	9. 083	------	18. 166	27. 248
55	3. 632	4. 541	9. 082	13. 624	18. 164	27. 246
56¼	-----	-----	-----	13. 622	18. 163	27. 246
57½	-----	-----	-----	------	18. 163	27. 245

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 5: 1¼	4. 535	0. 000
2½	9. 070	. 000
3¾	13. 603	. 001
5	18. 139	. 001
6¼	22. 673	. 001
7½	27. 209	. 002
10	36. 277	. 005
12½	45. 347	. 007
15	54. 416	. 010

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
6 00	3. 632	4. 541	9. 080	13. 621	18. 162	27. 242	For latitude 6:		
02½	-----	4. 540	-----	13. 620	18. 161	27. 240	1¼	4. 535	0. 000
03¾	-----	-----	9. 079	13. 620	18. 160	27. 239	2½	9. 070	. 000
05	-----	-----	-----	13. 619	18. 158	27. 239	3¾	13. 603	. 001
07½	3. 631	-----	-----	13. 618	18. 157	27. 236	5	18. 139	. 001
							6¼	22. 674	. 002
10	-----	-----	9. 078	13. 618	18. 156	27. 234	7½	27. 209	. 004
11¼	-----	4. 538	-----	13. 616	18. 155	27. 233	10	36. 280	. 006
12½	-----	-----	9. 077	13. 616	18. 155	27. 232	12½	45. 349	. 008
15	-----	-----	-----	13. 615	18. 154	27. 229	15	54. 419	. 012
17½	3. 630	-----	9. 076	13. 614	18. 151	27. 228			
18¾	-----	4. 537	-----	13. 613	18. 151	27. 227			
20	-----	-----	-----	13. 613	18. 150	27. 226			
22½	-----	-----	9. 074	13. 612	18. 149	27. 223			
25	-----	-----	9. 073	13. 610	18. 148	27. 221			
26¼	3. 629	-----	-----	13. 610	18. 146	27. 220			
27½	-----	4. 536	-----	13. 609	18. 146	27. 218			
30	-----	-----	9. 072	13. 608	18. 144	27. 217			
32½	-----	-----	-----	13. 607	18. 143	27. 215			
33¾	-----	-----	9. 071	13. 607	18. 142	27. 214			
35	-----	4. 535	-----	13. 606	18. 142	27. 212			
37½	3. 628	-----	9. 070	13. 604	18. 140	27. 210			
40	-----	-----	-----	13. 603	18. 138	27. 208			
41¼	-----	-----	9. 068	13. 603	18. 138	27. 206			
42½	-----	4. 534	-----	13. 602	18. 137	27. 205			
45	-----	-----	9. 067	13. 602	18. 136	27. 203			
47½	3. 626	-----	-----	13. 601	18. 133	27. 200			
48¾	-----	-----	9. 066	13. 600	18. 133	27. 199			
50	-----	-----	-----	13. 600	18. 132	27. 198			
52½	-----	4. 532	9. 065	13. 598	18. 131	27. 196			
55	3. 625	-----	-----	13. 597	18. 128	27. 193			
56¼	-----	-----	9. 064	13. 596	18. 128	27. 192			
57½	-----	-----	-----	13. 596	18. 127	27. 191			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
7 00	3. 625	4. 531	9. 062	13. 595	18. 126	27. 188
02½	-----	-----	-----	13. 594	18. 124	27. 186
03¾	-----	-----	9. 061	13. 592	18. 124	27. 185
05	3. 624	-----	-----	13. 592	18. 122	27. 184
07½	-----	4. 530	9. 060	13. 591	18. 121	27. 181
10	-----	-----	-----	13. 590	18. 119	27. 179
11¼	-----	-----	9. 059	13. 589	18. 119	27. 178
12½	-----	4. 529	-----	13. 588	18. 118	27. 176
15	3. 623	-----	9. 058	13. 586	18. 116	27. 174
17½	-----	-----	-----	13. 585	18. 114	27. 172
18¾	-----	-----	9. 056	13. 585	18. 114	27. 170
20	-----	4. 528	-----	13. 584	18. 113	27. 169
22½	-----	-----	9. 055	13. 583	18. 112	27. 168
25	3. 622	-----	-----	13. 582	18. 109	27. 164
26¼	-----	-----	9. 054	13. 582	18. 108	27. 162
27½	-----	4. 526	-----	13. 580	18. 108	27. 161
30	-----	-----	9. 053	13. 579	18. 106	27. 158
32½	3. 620	-----	9. 052	13. 578	18. 104	27. 156
33¾	-----	4. 525	-----	13. 578	18. 103	27. 155
35	-----	-----	-----	13. 577	18. 102	27. 154
37½	-----	-----	9. 050	13. 576	18. 101	27. 151
40	-----	-----	9. 049	13. 574	18. 098	27. 149
41¼	3. 619	4. 524	-----	13. 573	18. 098	27. 148
42½	-----	-----	9. 048	13. 573	18. 097	27. 145
45	-----	-----	-----	13. 572	18. 095	27. 143
47½	-----	4. 524	9. 047	13. 570	18. 094	27. 140
48¾	3. 618	-----	-----	13. 570	18. 092	27. 139
50	-----	-----	9. 046	13. 568	18. 091	27. 138
52½	-----	-----	9. 044	13. 567	18. 090	27. 134
55	-----	4. 522	-----	13. 566	18. 088	27. 132
56¼	-----	-----	9. 043	13. 566	18. 088	27. 131
57½	3. 617	-----	-----	13. 565	18. 086	27. 130

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 7: 1¼	4. 535	0. 000
2½	9. 070	. 000
3¾	13. 606	. 001
5	18. 140	. 001
6¼	22. 675	. 002
7½	27. 210	. 004
10	36. 281	. 006
12½	45. 350	. 010
15	54. 420	. 014

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
8 00	3.617	4.522	9.042	13.564	18.084	27.127	For lat-		
02½	-----	4.520	9.041	13.562	18.083	27.124	itude 8: 1¼	4.535	0.000
03¾	-----	-----	-----	13.561	18.082	27.122	2½	9.071	.000
05	3.616	-----	-----	13.560	18.080	27.121	3¾	13.606	.001
07½	-----	4.519	9.040	13.559	18.079	27.119	5	18.142	.001
							6¼	22.676	.002
10	-----	-----	9.038	13.558	18.077	27.115	7½	27.211	.004
11¼	-----	-----	-----	13.558	18.076	27.114	10	36.282	.007
12½	-----	-----	9.037	13.556	18.076	27.113	12½	45.353	.012
15	3.614	4.518	-----	13.555	18.073	27.110	15	54.424	.017
17½	-----	-----	9.036	13.554	18.071	27.107			
18¾	-----	-----	9.035	13.553	18.071	27.106			
20	-----	4.517	-----	13.552	18.070	27.104			
22½	3.613	-----	9.034	13.550	18.067	27.102			
25	-----	-----	9.032	13.549	18.066	27.098			
26¼	-----	-----	-----	13.548	18.065	27.097			
27½	-----	4.516	-----	13.548	18.064	27.096			
30	3.612	-----	9.031	13.547	18.061	27.092			
32½	-----	4.514	9.030	13.544	18.060	27.090			
33¾	-----	-----	-----	13.544	18.059	27.089			
35	-----	-----	9.029	13.543	18.058	27.086			
37½	3.611	-----	9.028	13.542	18.056	27.084			
40	-----	4.513	9.026	13.541	18.054	27.080			
41¼	-----	-----	-----	13.540	18.053	27.079			
42½	-----	-----	-----	13.538	18.052	27.078			
45	3.610	4.512	9.025	13.537	18.050	27.074			
47½	-----	-----	9.024	13.536	18.048	27.072			
48¾	-----	-----	-----	13.535	18.047	27.071			
50	-----	-----	9.023	13.535	18.046	27.068			
52½	3.608	4.511	9.022	13.532	18.043	27.066			
55	-----	-----	9.020	13.531	18.042	27.062			
56¼	-----	4.510	-----	13.530	18.041	27.061			
57½	-----	-----	-----	13.530	18.040	27.060			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
9 00	3. 607	4. 509	9. 019	13. 529	18. 037	27. 056	For lat-		
02½	-----	4. 508	9. 018	13. 526	18. 036	27. 054	itude 9: 1¼	4. 536	0. 000
03¾	-----	-----	9. 017	13. 526	18. 035	27. 052	2½	9. 071	. 000
05	-----	-----	9. 017	13. 525	18. 034	27. 050	3¾	13. 607	. 001
07½	3. 606	-----	9. 016	13. 524	18. 031	27. 047	5	18. 142	. 002
							6¼	22. 678	. 004
10	-----	4. 507	9. 014	13. 522	18. 029	27. 044	7½	27. 214	. 005
11¼	-----	-----	9. 014	13. 522	18. 029	27. 042	10	36. 284	. 008
12½	-----	-----	9. 013	13. 520	18. 028	27. 041	12½	45. 355	. 013
15	3. 605	4. 506	9. 012	13. 519	18. 025	27. 037	15	54. 427	. 018
17½	-----	-----	9. 012	13. 517	18. 023	27. 035			
18¾	-----	-----	9. 011	13. 517	18. 022	27. 032			
20	3. 604	4. 505	9. 011	13. 516	18. 020	27. 031			
22½	-----	-----	9. 010	13. 514	18. 019	27. 028			
25	-----	4. 504	9. 008	13. 512	18. 017	27. 025			
26¼	-----	-----	9. 007	13. 512	18. 016	27. 023			
27½	3. 602	-----	9. 007	13. 511	18. 014	27. 022			
30	-----	-----	9. 006	13. 510	18. 012	27. 018			
32½	-----	4. 502	9. 005	13. 507	18. 010	27. 016			
33¾	3. 601	-----	9. 005	13. 507	18. 008	27. 013			
35	-----	-----	9. 004	13. 506	18. 008	27. 012			
37½	-----	4. 501	9. 002	13. 505	18. 006	27. 008			
40	-----	-----	9. 001	13. 502	18. 004	27. 005			
41¼	3. 600	4. 500	9. 001	13. 501	18. 002	27. 004			
42½	-----	-----	9. 001	13. 501	18. 001	27. 002			
45	-----	-----	9. 000	13. 499	17. 999	26. 999			
47½	3. 599	4. 499	8. 999	13. 498	17. 996	26. 995			
48¾	-----	-----	8. 998	13. 496	17. 995	26. 993			
50	-----	-----	8. 998	13. 496	17. 994	26. 992			
52½	-----	4. 498	8. 996	13. 494	17. 992	26. 988			
55	3. 598	-----	8. 995	13. 493	17. 990	26. 984			
56¼	-----	-----	8. 994	13. 492	17. 989	26. 983			
57½	-----	-----	8. 994	13. 490	17. 988	26. 982			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
10	00	3. 598	4. 496	8. 993	13. 489	17. 986	26. 978
	02½	3. 596	-----	8. 992	13. 487	17. 983	26. 975
	03¾	-----	4. 495	8. 992	13. 487	17. 982	26. 974
	05	-----	-----	8. 990	13. 486	17. 981	26. 971
	07½	3. 595	-----	8. 989	13. 484	17. 978	26. 968
	10	-----	4. 494	8. 988	13. 482	17. 976	26. 964
	11¼	-----	-----	8. 988	13. 481	17. 975	26. 963
	12½	-----	-----	8. 987	13. 481	17. 974	26. 960
	15	3. 594	4. 493	8. 986	13. 478	17. 971	26. 957
	17½	-----	-----	8. 984	13. 477	17. 969	26. 953
	18¾	-----	4. 492	8. 984	13. 476	17. 968	26. 952
	20	-----	-----	8. 983	13. 475	17. 966	26. 951
	22½	3. 594	-----	8. 982	13. 474	17. 964	26. 947
	25	-----	4. 490	8. 981	13. 471	17. 962	26. 942
	26¼	-----	-----	8. 981	13. 471	17. 960	26. 941
	27½	3. 592	-----	8. 980	13. 470	17. 959	26. 940
	30	-----	4. 489	8. 978	13. 468	17. 957	26. 936
	32½	-----	-----	8. 977	13. 466	17. 954	26. 933
	33¾	3. 590	4. 488	8. 977	13. 465	17. 953	26. 930
	35	-----	-----	8. 976	13. 464	17. 952	26. 928
	37½	-----	-----	8. 975	13. 463	17. 950	26. 924
	40	3. 589	4. 487	8. 974	13. 460	17. 947	26. 922
	41¼	-----	-----	8. 974	13. 459	17. 946	26. 920
	42½	-----	-----	8. 972	13. 459	17. 945	26. 917
	45	3. 588	4. 486	8. 971	13. 457	17. 942	26. 914
	47½	-----	-----	8. 970	13. 456	17. 940	26. 910
	48¾	-----	4. 484	8. 970	13. 454	17. 939	26. 909
	50	-----	-----	8. 969	13. 453	17. 938	26. 906
	52½	3. 588	-----	8. 968	13. 452	17. 935	26. 903
	55	-----	4. 483	9. 966	13. 450	17. 933	26. 899
	56¼	-----	-----	9. 965	13. 448	17. 932	26. 897
	57½	3. 586	4. 482	9. 965	13. 447	17. 930	26. 896

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 10: 1¼	4. 536	0. 000
2½	9. 072	. 000
3¾	13. 607	. 001
5	18. 143	. 002
6¼	22. 679	. 004
7½	27. 215	. 005
10	36. 286	. 010
12½	45. 358	. 014
15	54. 430	. 020

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
11	00	3. 586	4. 482	8. 964	13. 446	17. 928	26. 892
	02½	-----	4. 481	8. 963	13. 444	17. 926	26. 887
	03¾	3. 584	-----	8. 962	13. 442	17. 924	26. 886
	05	-----	-----	8. 962	13. 442	17. 923	26. 883
	07½	-----	4. 480	8. 960	13. 440	17. 920	26. 880
	10	3. 583	-----	8. 959	13. 439	17. 917	26. 876
	11¼	-----	-----	8. 958	13. 438	17. 916	26. 874
	12½	-----	4. 478	8. 958	13. 436	17. 915	26. 873
	15	3. 582	-----	8. 956	13. 434	17. 912	26. 868
	17½	-----	4. 477	8. 954	13. 433	17. 910	26. 864
	18¾	-----	-----	8. 954	13. 432	17. 909	26. 863
	20	-----	-----	8. 953	13. 430	17. 908	26. 861
	22¾	3. 581	4. 476	8. 952	13. 428	17. 905	26. 857
	25	-----	-----	8. 951	13. 427	17. 902	26. 854
	26¼	3. 580	4. 475	8. 951	13. 426	17. 900	26. 851
	27½	-----	-----	8. 950	13. 424	17. 899	26. 849
	30	-----	4. 474	8. 948	13. 423	17. 897	26. 845
	32½	3. 578	-----	8. 947	13. 421	17. 894	26. 842
	33¾	-----	-----	8. 946	13. 420	17. 893	26. 839
	35	-----	4. 472	8. 946	13. 418	17. 892	26. 837
	37½	-----	-----	8. 945	13. 417	17. 888	26. 833
	40	3. 577	4. 471	8. 944	13. 415	17. 886	26. 830
	41¼	-----	-----	8. 942	13. 414	17. 885	26. 827
	42½	-----	-----	8. 941	13. 412	17. 884	26. 825
	45	3. 576	4. 470	8. 940	13. 411	17. 881	26. 821
	47½	-----	-----	8. 939	13. 409	17. 879	26. 818
	48¾	3. 575	4. 469	8. 939	13. 408	17. 876	26. 816
	50	-----	-----	8. 938	13. 406	17. 875	26. 813
	52½	-----	-----	8. 936	13. 405	17. 873	26. 809
	55	3. 574	4. 468	8. 935	13. 403	17. 870	26. 806
	56¼	-----	-----	8. 934	13. 402	17. 869	26. 803
	57½	-----	4. 466	8. 934	13. 400	17. 867	26. 801

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 11: 1¼	4. 536	0. 000
2½	9. 072	. 001
3¾	13. 608	. 001
5	18. 144	. 002
6¼	22. 680	. 004
7½	27. 216	. 006
10	36. 288	. 010
12½	45. 361	. 016
15	54. 433	. 023

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
12 00	3.572	4.466	8.933	13.398	17.864	26.797	For lat-		
02½	-----	4.465	8.930	13.397	17.862	26.792	itude 12: 1¼	4.536	0.000
03¾	-----	-----	8.930	13.396	17.861	26.791	2½	9.073	.001
05	-----	-----	8.929	13.394	17.860	26.789	3¾	13.608	.001
07½	3.571	4.464	8.928	13.392	17.856	26.784	5	18.145	.002
							6¼	22.682	.005
10	-----	4.463	8.927	13.390	17.854	26.780	7½	27.218	.006
11¼	3.570	-----	8.926	13.390	17.852	26.778	10	36.292	.011
12½	-----	-----	8.926	13.388	17.851	26.776	12½	45.365	.017
15	-----	4.462	8.924	13.386	17.848	26.772	15	54.437	.024
17½	3.569	-----	8.922	13.384	17.845	26.767			
18¾	-----	4.460	8.922	13.382	17.844	26.766			
20	-----	-----	8.921	13.381	17.843	26.764			
22½	3.568	-----	8.920	13.380	17.839	26.759			
25	-----	4.459	8.918	13.378	17.837	26.755			
26¼	-----	-----	8.917	13.376	17.836	26.753			
27½	3.566	4.458	8.917	13.375	17.834	26.750			
30	-----	-----	8.916	13.373	17.831	26.747			
32½	3.565	4.457	8.914	13.372	17.828	26.742			
33¾	-----	-----	8.914	13.370	17.827	26.740			
35	-----	-----	8.912	13.369	17.825	26.737			
37½	3.564	4.456	8.911	13.367	17.822	26.734			
40	-----	4.454	8.910	13.364	17.820	26.729			
41¼	-----	-----	8.909	13.363	17.818	26.728			
42½	3.563	-----	8.909	13.362	17.816	26.725			
45	-----	4.453	8.906	13.361	17.814	26.720			
47½	3.562	-----	8.905	13.358	17.810	26.717			
48¾	-----	4.452	8.905	13.357	17.809	26.714			
50	-----	-----	8.904	13.356	17.808	26.712			
52½	3.560	4.451	8.903	13.354	17.804	26.707			
55	-----	-----	8.900	13.351	17.802	26.702			
56¼	-----	4.450	8.900	13.350	17.801	26.701			
57½	3.559	-----	8.899	13.349	17.798	26.699			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
13 00	3. 559	4. 450	8. 898	13. 348	17. 796	26. 694
02½	-----	4. 448	8. 897	13. 345	17. 794	26. 689
03¾	3. 558	-----	8. 896	13. 344	17. 791	26. 688
05	-----	4. 447	8. 896	13. 343	17. 790	26. 686
07½	-----	-----	8. 893	13. 340	17. 788	26. 681
10	3. 557	4. 446	8. 892	13. 338	17. 784	26. 676
11¼	-----	-----	8. 891	13. 337	17. 783	26. 674
12½	-----	4. 445	8. 891	13. 336	17. 782	26. 671
15	3. 556	-----	8. 890	13. 333	17. 778	26. 668
17½	-----	4. 444	8. 887	13. 331	17. 776	26. 663
18¾	3. 554	-----	8. 887	13. 330	17. 773	26. 660
20	-----	-----	8. 886	13. 328	17. 772	26. 658
22½	3. 553	4. 442	8. 885	13. 327	17. 768	26. 653
25	-----	4. 441	8. 882	13. 325	17. 766	26. 648
26¼	-----	-----	8. 882	13. 324	17. 765	26. 646
27½	3. 552	-----	8. 881	13. 322	17. 762	26. 645
30	-----	4. 440	8. 880	13. 320	17. 760	26. 640
32½	3. 551	4. 439	8. 878	13. 318	17. 756	26. 635
33¾	-----	-----	8. 878	13. 316	17. 755	26. 633
35	-----	-----	8. 876	13. 315	17. 754	26. 630
37½	3. 550	4. 438	8. 875	13. 313	17. 750	26. 626
40	-----	4. 436	8. 874	13. 310	17. 748	26. 621
41¼	-----	-----	8. 873	13. 309	17. 746	26. 618
42½	3. 548	-----	8. 872	13. 308	17. 744	26. 616
45	-----	4. 435	8. 870	13. 306	17. 741	26. 611
47½	3. 547	4. 434	8. 869	13. 303	17. 738	26. 606
48¾	-----	-----	8. 868	13. 302	17. 736	26. 604
50	-----	-----	8. 868	13. 301	17. 735	26. 603
52½	3. 546	4. 433	8. 866	13. 298	17. 731	26. 598
55	-----	4. 432	8. 864	13. 296	17. 729	26. 593
56¼	3. 545	-----	8. 863	13. 295	17. 726	26. 591
57½	-----	-----	8. 863	13. 294	17. 725	26. 588

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 13: 1¼	4. 537	0. 000
2½	9. 073	. 001
3¾	13. 610	. 001
5	18. 146	. 002
6¼	22. 684	. 005
7½	27. 221	. 006
10	36. 294	. 012
12½	45. 367	. 018
15	54. 440	. 026

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval								
	1′	1¼′	2½′	3¾′	5′	7½′	Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
14 00	3. 545	4. 430	8. 861	13. 291	17. 723	26. 584	For lat-		
02½	3. 544	4. 429	8. 860	13. 289	17. 719	26. 579	itude 14: 1¼	4. 537	0. 000
03¾	-----	-----	8. 858	13. 288	17. 717	26. 576	2½	9. 074	. 001
05	-----	-----	8. 857	13. 286	17. 716	26. 574	3¾	13. 612	. 002
07½	3. 542	4. 428	8. 856	13. 284	17. 712	26. 569	5	18. 149	. 004
							6¼	22. 686	. 005
10	-----	4. 427	8. 855	13. 282	17. 710	26. 564	7½	27. 223	. 007
11¼	3. 541	-----	8. 854	13. 280	17. 707	26. 562	10	36. 296	. 012
12½	-----	-----	8. 854	13. 279	17. 706	26. 558	12½	45. 371	. 019
15	3. 540	4. 426	8. 851	13. 277	17. 702	26. 554	15	54. 445	. 028
17½	-----	4. 424	8. 850	13. 274	17. 700	26. 549			
18¾	-----	-----	8. 849	13. 273	17. 698	26. 546			
20	3. 539	-----	8. 848	13. 272	17. 696	26. 544			
22½	-----	4. 423	8. 846	13. 270	17. 693	26. 539			
25	3. 538	4. 422	8. 845	13. 267	17. 689	26. 534			
26¼	-----	-----	8. 844	13. 266	17. 688	26. 532			
27½	-----	-----	8. 843	13. 265	17. 687	26. 530			
30	3. 536	4. 421	8. 842	13. 262	17. 683	26. 525			
32½	-----	4. 420	8. 840	13. 260	17. 680	26. 520			
33¾	3. 535	-----	8. 839	13. 259	17. 678	26. 518			
35	-----	-----	8. 838	13. 258	17. 676	26. 515			
37½	-----	4. 418	8. 837	13. 255	17. 674	26. 509			
40	3. 534	4. 417	8. 834	13. 253	17. 670	26. 504			
41¼	3. 533	-----	8. 834	13. 252	17. 668	26. 502			
42½	-----	-----	8. 833	13. 250	17. 666	26. 500			
45	-----	4. 416	8. 832	13. 247	17. 663	26. 495			
47½	3. 532	4. 415	8. 830	13. 244	17. 660	26. 490			
48¾	-----	-----	8. 830	13. 243	17. 658	26. 488			
50	-----	4. 414	8. 828	13. 242	17. 657	26. 485			
52½	3. 530	-----	8. 826	13. 240	17. 653	26. 479			
55	-----	4. 412	8. 825	13. 237	17. 650	26. 474			
56¼	3. 529	4. 412	8. 824	13. 236	17. 648	26. 472			
57½	3. 529	4. 411	8. 824	13. 235	17. 646	26. 470			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
		Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
		1′	1¼′	2½′	3¾′	5′	7½′			
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
15	00	3. 528	4. 411	8. 821	13. 232	17. 642	26. 465	For latitude 15:		
	02½	-----	4. 410	8. 820	13. 230	17. 640	26. 459	1¼	4. 537	0. 000
	03¾	-----	-----	8. 819	13. 229	17. 638	26. 456	2½	9. 074	. 001
	05	3. 527	4. 409	8. 818	13. 228	17. 636	26. 454	3¾	13. 613	. 002
	07½	-----	4. 408	8. 816	13. 224	17. 633	26. 449	5	18. 150	. 004
								6¼	22. 687	. 006
	10	3. 526	-----	8. 814	13. 222	17. 629	26. 443	10	36. 300	. 013
	11¼	-----	4. 406	8. 814	13. 220	17. 627	26. 441	12½	45. 376	. 020
	12½	-----	-----	8. 813	13. 219	17. 626	26. 438	15	54. 450	. 030
	15	3. 524	4. 405	8. 812	13. 217	17. 622	26. 434			
	17½	3. 523	-----	8. 809	13. 214	17. 618	26. 428			
	18¾	-----	4. 404	8. 808	13. 213	17. 617	26. 425			
	20	-----	-----	8. 808	13. 211	17. 615	26. 423			
	22½	3. 522	4. 403	8. 806	13. 208	17. 611	26. 417			
	25	-----	4. 402	8. 804	13. 206	17. 608	26. 412			
	26¼	3. 521	-----	8. 803	13. 205	17. 606	26. 410			
	27½	-----	-----	8. 802	13. 204	17. 604	26. 407			
	30	-----	4. 400	8. 801	13. 201	17. 602	26. 401			
	32½	3. 520	4. 399	8. 798	13. 199	17. 598	26. 396			
	33¾	-----	-----	8. 798	13. 196	17. 596	26. 394			
	35	3. 518	4. 398	8. 797	13. 195	17. 594	26. 392			
	37½	-----	-----	8. 795	13. 193	17. 591	26. 386			
	40	3. 517	4. 397	8. 794	13. 190	17. 587	26. 381			
	41¼	-----	-----	8. 792	13. 189	17. 585	26. 377			
	42½	-----	4. 396	8. 791	13. 188	17. 584	26. 375			
	45	3. 516	4. 394	8. 790	13. 184	17. 580	26. 370			
	47½	3. 515	-----	8. 788	13. 182	17. 576	26. 364			
	48¾	-----	4. 393	8. 786	13. 181	17. 574	26. 362			
	50	-----	-----	8. 786	13. 180	17. 573	26. 359			
	52½	3. 514	4. 392	8. 784	13. 177	17. 569	26. 353			
	55	-----	4. 391	8. 783	13. 174	17. 566	26. 348			
	56¼	3. 512	-----	8. 782	13. 172	17. 563	26. 345			
	57½	3. 512	4. 391	8. 780	13. 171	17. 562	26. 342			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
16 00	3. 511	4. 390	8. 780	13. 169	17. 558	26. 338	For latitude 16:		
02½	-----	4. 388	8. 777	13. 166	17. 555	26. 332	1¼	4. 537	0. 000
03¾	3. 510	-----	8. 777	13. 164	17. 552	26. 329	2½	9. 076	. 001
05	-----	4. 387	8. 776	13. 163	17. 551	26. 326	3¾	13. 614	. 002
07½	-----	-----	8. 773	13. 160	17. 548	26. 321	5	18. 151	. 004
							6¼	22. 690	. 006
10	3. 509	4. 386	8. 772	13. 158	17. 544	26. 315	7½	27. 228	. 008
11¼	-----	-----	8. 771	13. 157	17. 542	26. 312	10	36. 304	. 014
12½	3. 508	4. 385	8. 770	13. 154	17. 540	26. 310	12½	45. 380	. 022
15	3. 506	4. 384	8. 768	13. 152	17. 537	26. 304	15	54. 455	. 031
17½	-----	-----	8. 766	13. 150	17. 532	26. 299			
18¾	3. 506	4. 382	8. 765	13. 148	17. 531	26. 296			
20	-----	-----	8. 765	13. 146	17. 528	26. 293			
22½	-----	4. 381	8. 762	13. 144	17. 525	26. 288			
25	3. 504	4. 380	8. 760	13. 141	17. 521	26. 281			
26¼	-----	-----	8. 760	13. 140	17. 519	26. 279			
27½	-----	4. 379	8. 759	13. 138	17. 518	26. 276			
30	3. 503	-----	8. 756	13. 135	17. 514	26. 270			
32½	3. 502	4. 378	8. 755	13. 133	17. 510	26. 266			
33¾	-----	-----	8. 754	13. 132	17. 508	26. 262			
35	-----	4. 376	8. 753	13. 129	17. 507	26. 260			
37½	3. 500	4. 375	8. 752	13. 127	17. 502	26. 254			
40	3. 499	-----	8. 749	13. 124	17. 498	26. 249			
41¼	-----	4. 374	8. 748	13. 123	17. 497	26. 245			
42½	-----	-----	8. 748	13. 121	17. 495	26. 243			
45	3. 498	4. 373	8. 746	13. 119	17. 491	26. 237			
47½	-----	4. 372	8. 743	13. 116	17. 488	26. 231			
48¾	3. 497	-----	8. 743	13. 114	17. 485	26. 228			
50	-----	4. 370	8. 742	13. 112	17. 484	26. 226			
52½	3. 496	-----	8. 740	13. 110	17. 479	26. 220			
55	-----	4. 369	8. 738	13. 106	17. 476	26. 214			
56¼	3. 494	4. 368	8. 737	13. 105	17. 474	26. 210			
57½	3. 494	4. 368	8. 736	13. 104	17. 472	26. 208			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
17 00	3. 493	4. 367	8. 734	13. 102	17. 468	26. 202
02½	-----	4. 366	8. 732	13. 098	17. 465	26. 196
03¾	3. 492	-----	8. 731	13. 097	17. 462	26. 194
05	-----	-----	8. 730	13. 096	17. 460	26. 191
07½	3. 491	4. 364	8. 729	13. 092	17. 456	26. 185
10	-----	4. 363	8. 726	13. 090	17. 453	26. 179
11¼	3. 490	-----	8. 725	13. 088	17. 450	26. 176
12½	-----	4. 362	8. 724	13. 087	17. 449	26. 173
15	3. 488	4. 361	8. 723	13. 084	17. 444	26. 167
17½	-----	-----	8. 720	13. 081	17. 441	26. 161
18¾	3. 487	4. 360	8. 719	13. 079	17. 438	26. 159
20	-----	-----	8. 718	13. 078	17. 437	26. 155
22½	3. 486	4. 358	8. 717	13. 075	17. 434	26. 149
25	-----	4. 357	8. 714	13. 072	17. 429	26. 143
26¼	3. 485	-----	8. 713	13. 070	17. 428	26. 141
27½	-----	4. 356	8. 712	13. 069	17. 425	26. 137
30	-----	4. 355	8. 711	13. 066	17. 422	26. 132
32½	3. 484	-----	8. 708	13. 063	17. 417	26. 126
33¾	-----	4. 354	8. 707	13. 061	17. 416	26. 123
35	3. 482	-----	8. 706	13. 060	17. 413	26. 119
37½	-----	4. 352	8. 705	13. 057	17. 410	26. 114
40	3. 481	4. 351	8. 702	13. 054	17. 405	26. 108
41¼	-----	-----	8. 701	13. 052	17. 404	26. 105
42½	3. 480	4. 350	8. 701	13. 051	17. 401	26. 102
45	-----	4. 349	8. 699	13. 048	17. 398	26. 096
47½	3. 479	-----	8. 696	13. 045	17. 393	26. 089
48¾	-----	4. 348	8. 695	13. 043	17. 392	26. 087
50	3. 478	-----	8. 694	13. 042	17. 389	26. 083
52½	-----	4. 346	8. 693	13. 039	17. 386	26. 077
55	3. 476	4. 345	8. 690	13. 036	17. 381	26. 071
56¼	3. 475	-----	8. 689	13. 034	17. 380	26. 069
57½	3. 474	4. 344	8. 688	13. 033	17. 377	26. 065

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 17: 1¼	4. 538	0. 000
2½	9. 077	. 001
3¾	13. 615	. 002
5	18. 154	. 004
6¼	22. 692	. 006
7½	27. 230	. 008
10	36. 307	. 014
12½	45. 384	. 023
15	54. 461	. 034

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
18 00	3. 474	4. 343	8. 687	13. 030	17. 372	26. 059	For lat-		
02½	-----	4. 342	8. 684	13. 026	17. 369	26. 053	itude 18: 1¼	4. 538	0. 000
03¾	3. 473	-----	8. 683	13. 025	17. 366	26. 050	2½	9. 078	. 001
05	-----	-----	8. 682	13. 024	17. 365	26. 047	3¾	13. 616	. 002
07½	3. 472	4. 340	8. 681	13. 020	17. 360	26. 041	5	18. 155	. 004
							6¼	22. 694	. 006
10	-----	4. 339	8. 678	13. 018	17. 357	26. 035	7½	27. 233	. 008
11¼	3. 470	-----	8. 677	13. 016	17. 354	26. 032	10	36. 311	. 016
12½	-----	4. 338	8. 676	13. 014	17. 352	26. 028	12½	45. 389	. 024
15	3. 469	4. 337	8. 674	13. 012	17. 348	26. 022	15	54. 466	. 035
17½	-----	4. 336	8. 672	13. 008	17. 344	26. 016			
18¾	3. 468	4. 336	8. 671	13. 007	17. 342	26. 014			
20	-----	4. 334	8. 670	13. 004	17. 340	26. 010			
22½	3. 467	-----	8. 668	13. 002	17. 336	26. 004			
25	-----	4. 333	8. 666	12. 998	17. 332	25. 998			
26¼	3. 466	4. 332	8. 665	12. 997	17. 329	25. 994			
27½	-----	-----	8. 664	12. 996	17. 328	25. 991			
30	3. 464	4. 331	8. 662	12. 992	17. 323	25. 985			
32½	-----	4. 330	8. 659	12. 989	17. 320	25. 979			
33¾	3. 463	-----	8. 658	12. 988	17. 317	25. 975			
35	-----	4. 328	8. 658	12. 986	17. 315	25. 973			
37½	3. 462	4. 327	8. 656	12. 983	17. 311	25. 966			
40	3. 461	-----	8. 653	12. 980	17. 306	25. 960			
41¼	-----	4. 326	8. 652	12. 978	17. 304	25. 955			
42½	-----	-----	8. 651	12. 977	17. 303	25. 954			
45	3. 460	4. 325	8. 650	12. 973	17. 298	25. 948			
47½	3. 458	4. 324	8. 647	12. 971	17. 293	25. 940			
48¾	-----	4. 322	8. 646	12. 968	17. 292	25. 938			
50	-----	-----	8. 645	12. 967	17. 290	25. 934			
52½	3. 457	4. 321	8. 642	12. 964	17. 285	25. 928			
55	3. 456	4. 320	8. 640	12. 961	17. 281	25. 921			
56¼	-----	-----	8. 639	12. 959	17. 279	25. 918			
57½	3. 455	4. 319	8. 639	12. 958	17. 278	25. 915			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
19 00	3. 455	4. 318	8. 636	12. 954	17. 273	25. 909	For lat-		
02½	3. 454	-----	8. 634	12. 952	17. 268	25. 902	itude 19: 1¼	4. 540	0. 000
03¾	-----	4. 316	8. 633	12. 949	17. 266	25. 898	2½	9. 078	. 001
05	3. 452	-----	8. 632	12. 948	17. 263	25. 896	3¾	13. 618	. 002
07½	-----	4. 315	8. 629	12. 944	17. 260	25. 889	5	18. 157	. 004
10	3. 451	4. 314	8. 628	12. 941	17. 255	25. 883	6¼	22. 697	. 006
11¼	3. 450	4. 313	8. 627	12. 940	17. 252	25. 879	7½	27. 236	. 009
12½	-----	-----	8. 626	12. 938	17. 251	25. 876	10	36. 314	. 017
15	3. 449	4. 312	8. 623	12. 935	17. 246	25. 870	12½	45. 394	. 025
17½	-----	4. 310	8. 621	12. 931	17. 242	25. 864	15	45. 472	. 037
18¾	3. 448	-----	8. 620	12. 930	17. 240	25. 860			
20	-----	4. 309	8. 618	12. 929	17. 238	25. 856			
22½	3. 446	4. 308	8. 617	12. 925	17. 233	25. 850			
25	-----	4. 307	8. 615	12. 922	17. 228	25. 843			
26¼	3. 445	-----	8. 614	12. 919	17. 227	25. 840			
27½	-----	4. 306	8. 612	12. 918	17. 225	25. 837			
30	3. 444	-----	8. 610	12. 916	17. 220	25. 830			
32½	3. 443	4. 304	8. 608	12. 912	17. 215	25. 824			
33¾	-----	4. 303	8. 606	12. 910	17. 214	25. 820			
35	-----	-----	8. 605	12. 908	17. 212	25. 817			
37½	3. 442	4. 302	8. 603	12. 905	17. 207	25. 810			
40	3. 440	4. 301	8. 602	12. 901	17. 202	25. 804			
41¼	-----	4. 300	8. 600	12. 900	17. 200	25. 800			
42½	3. 439	-----	8. 599	12. 899	17. 198	25. 796			
45	-----	4. 298	8. 597	12. 895	17. 194	25. 790			
47½	3. 438	4. 297	8. 594	12. 892	17. 189	25. 783			
48¾	-----	-----	8. 593	12. 890	17. 186	25. 781			
50	3. 437	4. 296	8. 592	12. 888	17. 185	25. 777			
52½	3. 436	4. 295	8. 590	12. 886	17. 180	25. 770			
55	-----	4. 294	8. 587	12. 882	17. 176	25. 763			
56¼	3. 434	-----	8. 587	12. 880	17. 173	25. 760			
57½	3. 434	4. 292	8. 586	12. 878	17. 171	25. 757			

'ABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
20 00	3. 433	4. 291	8. 584	12. 875	17. 166	25. 750	For lat-		
02½	3. 432	4. 290	8. 581	12. 871	17. 162	25. 742	itude 20: 1¼	4. 540	0. 000
03¾	-----	-----	8. 580	12. 870	17. 160	25. 740	2½	9. 079	. 001
05	-----	4. 289	8. 579	12. 868	17. 158	25. 736	3¾	13. 620	. 002
07½	3. 431	-----	8. 576	12. 865	17. 153	25. 729	5	18. 160	. 005
							6¼	22. 699	. 007
10	3. 430	4. 288	8. 574	12. 862	17. 148	25. 723	7½	27. 239	. 009
11¼	-----	4. 286	8. 573	12. 859	17. 146	25. 720	10	36. 318	. 017
12½	3. 428	-----	8. 572	12. 858	17. 144	25. 716	12½	45. 398	. 026
15	-----	4. 285	8. 569	12. 854	17. 140	25. 709	15	54. 478	. 038
17½	3. 427	4. 284	8. 567	12. 851	17. 135	25. 702			
18¾	3. 426	4. 283	8. 567	12. 850	17. 132	25. 699			
20	-----	-----	8. 566	12. 847	17. 130	25. 696			
22½	3. 425	4. 282	8. 563	12. 844	17. 125	25. 688			
25	3. 424	4. 280	8. 561	12. 841	17. 120	25. 681			
26¼	3. 424	4. 279	8. 560	12. 839	17. 118	25. 678			
27½	-----	-----	8. 558	12. 838	17. 117	25. 674			
30	3. 422	4. 278	8. 556	12. 834	17. 112	25. 668			
32½	3. 421	4. 277	8. 554	12. 830	17. 107	25. 661			
33¾	-----	4. 276	8. 552	12. 828	17. 105	25. 657			
35	3. 420	-----	8. 551	12. 827	17. 102	25. 654			
37½	-----	4. 274	8. 549	12. 823	17. 098	25. 646			
40	3. 419	4. 273	8. 546	12. 820	17. 093	25. 639			
41¼	3. 418	-----	8. 545	12. 818	17. 090	25. 636			
42½	-----	4. 272	8. 544	12. 816	17. 088	25. 633			
45	3. 416	4. 271	8. 542	12. 812	17. 084	25. 626			
47½	-----	4. 270	8. 539	12. 809	17. 080	25. 619			
48¾	3. 415	-----	8. 538	12. 808	17. 077	25. 615			
50	-----	4. 268	8. 537	12. 806	17. 075	25. 612			
52½	3. 414	4. 267	8. 534	12. 803	17. 070	25. 604			
55	3. 413	4. 266	8. 532	12. 799	17. 065	25. 597			
56¼	-----	-----	8. 532	12. 797	17. 063	25. 594			
57½	3. 412	4. 265	8. 530	12. 796	17. 060	25. 590			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
21 00	3. 412	4. 264	8. 527	12. 792	17. 056	25. 583
02½	3. 410	4. 262	8. 525	12. 788	17. 051	25. 576
03¾	3. 409	4. 262	8. 525	12. 786	17. 048	25. 573
05	-----	4. 261	8. 524	12. 785	17. 046	25. 570
07½	3. 408	4. 260	8. 521	12. 781	17. 041	25. 562
10	3. 407	4. 259	8. 519	12. 778	17. 036	25. 555
11¼	-----	-----	8. 518	12. 775	17. 034	25. 553
12½	-----	4. 258	8. 516	12. 774	17. 032	25. 548
15	3. 406	4. 256	8. 514	12. 770	17. 027	25. 541
17½	-----	-----	8. 512	12. 767	17. 022	25. 534
18¾	3. 404	4. 255	8. 510	12. 764	17. 020	25. 530
20	3. 403	4. 254	8. 509	12. 763	17. 017	25. 526
22½	-----	4. 253	8. 507	12. 760	17. 012	25. 519
25	3. 402	-----	8. 504	12. 756	17. 008	25. 512
26¼	-----	4. 252	8. 503	12. 754	17. 005	25. 508
27½	3. 401	4. 250	8. 502	12. 752	17. 003	25. 505
30	3. 400	4. 249	8. 500	12. 749	16. 998	25. 498
32½	3. 398	-----	8. 497	12. 745	16. 993	25. 490
33¾	-----	4. 248	8. 496	12. 743	16. 991	25. 487
35	3. 397	4. 247	8. 494	12. 742	16. 988	25. 482
37½	-----	4. 246	8. 491	12. 738	16. 984	25. 475
40	3. 396	4. 244	8. 489	12. 734	16. 979	25. 468
41¼	-----	4. 244	8. 488	12. 732	16. 976	25. 464
42½	3. 395	4. 243	8. 486	12. 731	16. 974	25. 460
45	3. 394	4. 242	8. 484	12. 727	16. 969	25. 453
47½	-----	4. 241	8. 482	12. 722	16. 964	25. 446
48¾	3. 392	-----	8. 480	12. 721	16. 962	25. 442
50	-----	4. 240	8. 479	12. 719	16. 960	25. 439
52½	3. 391	4. 238	8. 477	12. 715	16. 954	25. 432
55	-----	4. 237	8. 474	12. 712	16. 949	25. 424
56¼	3. 390	-----	8. 473	12. 710	16. 946	25. 420
57½	3. 389	4. 236	8. 472	12. 708	16. 944	25. 416

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 21: 1¼	5. 441	0. 000
2½	9. 080	. 001
3¾	13. 621	. 002
5	18. 161	. 005
6¼	22. 702	. 007
7½	27. 242	. 008
10	36. 323	. 018
12½	45. 404	. 028
15	54. 484	. 040

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
22 00	3. 388	4. 235	8. 470	12. 704	16. 939	25. 409
02½	3. 386	4. 234	8. 467	12. 701	16. 934	25. 402
03¾	-----	4. 232	8. 466	12. 698	16. 932	25. 398
05	-----	4. 232	8. 465	12. 697	16. 930	25. 394
07½	3. 385	4. 231	8. 462	12. 694	16. 925	25. 387
10	3. 384	4. 230	8. 460	12. 690	16. 920	25. 379
11¼	3. 383	4. 229	8. 459	12. 688	16. 916	25. 375
12¼	-----	4. 229	8. 458	12. 684	16. 914	25. 372
15	3. 382	4. 228	8. 455	12. 682	16. 909	25. 364
17½	3. 380	4. 226	8. 453	12. 678	16. 904	25. 357
18¾	-----	4. 225	8. 452	12. 677	16. 902	25. 354
20	-----	4. 225	8. 449	12. 674	16. 900	25. 349
22½	3. 379	4. 224	8. 447	12. 671	16. 895	25. 342
25	3. 378	4. 223	8. 444	12. 667	16. 889	25. 334
26¼	-----	4. 222	8. 443	12. 665	16. 886	25. 331
27½	3. 377	4. 222	8. 442	12. 664	16. 884	25. 326
30	3. 376	4. 220	8. 440	12. 660	16. 879	25. 319
32½	3. 374	4. 218	8. 437	12. 655	16. 874	25. 312
33¾	-----	4. 218	8. 436	12. 654	16. 872	25. 308
35	3. 373	4. 217	8. 435	12. 652	16. 870	25. 304
37½	-----	4. 216	8. 432	12. 648	16. 864	25. 296
40	3. 372	4. 214	8. 430	12. 644	16. 859	25. 289
41¼	3. 371	4. 214	8. 429	12. 642	16. 856	25. 285
42½	-----	4. 213	8. 426	12. 641	16. 854	25. 280
45	3. 370	4. 212	8. 424	12. 636	16. 849	25. 273
47½	3. 368	4. 211	8. 423	12. 632	16. 843	25. 266
48¾	-----	4. 211	8. 420	12. 631	16. 841	25. 261
50	3. 367	4. 210	8. 419	12. 629	16. 838	25. 258
52½	-----	4. 208	8. 417	12. 625	16. 834	25. 250
55	3. 366	4. 207	8. 414	12. 622	16. 829	25. 242
56¼	3. 365	4. 206	8. 413	12. 619	16. 825	25. 238
57½	3. 365	4. 206	8. 412	12. 618	16. 823	25. 235

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 22: 1¼	4. 541	0. 000
2¼	9. 082	. 001
3¾	13. 622	. 002
5	18. 163	. 005
6¼	22. 705	. 007
7½	27. 246	. 011
10	36. 326	. 018
12½	45. 409	. 029
15	54. 491	. 042

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel		Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
		Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
		1′	1¼′	2½′	3¾′	5′	7½′			
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
23	00	3. 364	4. 205	8. 410	12. 613	16. 818	25. 228	For lat-		
	02½	3. 362	4. 204	8. 406	12. 610	16. 813	25. 219	itude 23: 1¼	4. 541	0. 000
	03¾	3. 362	4. 202	8. 405	12. 607	16. 811	25. 216	2½	9. 083	. 001
	05	3. 361	4. 202	8. 404	12. 606	16. 807	25. 212	3¾	13. 625	. 002
	07½	3. 360	4. 201	8. 401	12. 602	16. 802	25. 204	5	18. 166	. 005
								6¼	22. 708	. 007
	10	3. 360	4. 199	8. 399	12. 598	16. 798	25. 196	7½	27. 248	. 011
	11¼	3. 359	4. 199	8. 398	12. 596	16. 795	25. 193	10	36. 331	. 019
	12½	3. 359	4. 198	8. 396	12. 594	16. 792	25. 188	12½	45. 415	. 030
	15	3. 358	4. 196	8. 394	12. 590	16. 787	25. 181	15	54. 498	. 043
	17½	3. 356	4. 195	8. 390	12. 587	16. 782	25. 172			
	18¾	3. 356	4. 195	8. 389	12. 584	16. 780	25. 169			
	20	3. 355	4. 194	8. 388	12. 582	16. 776	25. 165			
	22½	3. 354	4. 193	8. 386	12. 578	16. 771	25. 157			
	25	3. 353	4. 192	8. 383	12. 575	16. 766	25. 148			
	26¼	3. 353	4. 190	8. 382	12. 572	16. 763	25. 145			
	27½	3. 352	4. 190	8. 381	12. 570	16. 760	25. 142			
	30	3. 352	4. 189	8. 377	12. 566	16. 756	25. 133			
	32½	3. 350	4. 188	8. 375	12. 563	16. 750	25. 126			
	33¾	3. 349	4. 187	8. 374	12. 560	16. 747	25. 121			
	35	3. 349	4. 187	8. 372	12. 559	16. 745	25. 117			
	37½	3. 348	4. 184	8. 370	12. 554	16. 740	25. 110			
	40	3. 347	4. 183	8. 368	12. 551	16. 734	25. 102			
	41¼	3. 347	4. 183	8. 366	12. 548	16. 732	25. 098			
	42½	3. 346	4. 182	8. 364	12. 547	16. 729	25. 093			
	45	3. 344	4. 181	8. 362	12. 542	16. 724	25. 086			
	47½	3. 343	4. 180	8. 359	12. 539	16. 718	25. 078			
	48¾	3. 343	4. 178	8. 358	12. 536	16. 716	25. 074			
	50	3. 343	4. 178	8. 357	12. 535	16. 714	25. 069			
	52½	3. 342	4. 177	8. 354	12. 530	16. 708	25. 062			
	55	3. 341	4. 176	8. 351	12. 527	16. 703	25. 054			
	56¼	3. 340	4. 175	8. 350	12. 524	16. 699	25. 051			
	57½	3. 340	4. 175	8. 348	12. 523	16. 697	25. 045			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
24 00	3. 338	4. 172	8. 346	12. 518	16. 692	25. 038	For lat-		
02½	3. 337	4. 171	8. 344	12. 515	16. 686	25. 030	itude 24: 1¼	4. 542	0. 000
03¾	3. 337	4. 171	8. 342	12. 512	16. 684	25. 026	2½	9. 084	. 001
05	3. 336	4. 170	8. 340	12. 511	16. 681	25. 021	3¾	13. 626	. 002
07½	3. 335	4. 169	8. 338	12. 506	16. 675	25. 013	5	18. 168	. 005
							6¼	22. 710	. 007
10	3. 334	4. 168	8. 335	12. 503	16. 670	25. 006	7½	27. 252	. 011
11¼	3. 334	4. 166	8. 334	12. 500	16. 667	25. 001	10	36. 336	. 019
12½	3. 332	4. 166	8. 333	12. 498	16. 664	24. 997	12½	45. 421	. 031
15	3. 332	4. 165	8. 329	12. 494	16. 660	24. 989	15	54. 505	. 044
17½	3. 331	4. 164	8. 327	12. 491	16. 654	24. 980			
18¾	3. 330	4. 163	8. 326	12. 488	16. 651	24. 977			
20	3. 330	4. 162	8. 324	12. 486	16. 649	24. 973			
22½	3. 329	4. 161	8. 322	12. 482	16. 643	24. 967			
25	3. 328	4. 159	8. 318	12. 478	16. 637	24. 956			
26¼	3. 326	4. 159	8. 317	12. 476	16. 634	24. 952			
27½	3. 326	4. 158	8. 316	12. 474	16. 632	24. 948			
30	3. 325	4. 157	8. 314	12. 470	16. 626	24. 940			
32½	3. 324	4. 156	8. 310	12. 466	16. 621	24. 931			
33¾	3. 324	4. 154	8. 309	12. 463	16. 619	24. 928			
35	3. 323	4. 154	8. 308	12. 462	16. 615	24. 923			
37½	3. 322	4. 152	8. 305	12. 457	16. 610	24. 916			
40	3. 320	4. 151	8. 303	12. 454	16. 604	24. 907			
41¼	3. 320	4. 151	8. 300	12. 451	16. 602	24. 902			
42½	3. 319	4. 150	8. 299	12. 449	16. 600	24. 899			
45	3. 319	4. 148	8. 297	12. 445	16. 594	24. 890			
47½	3. 318	4. 147	8. 294	12. 440	16. 588	24. 882			
48¾	3. 317	4. 146	8. 293	12. 439	16. 585	24. 878			
50	3. 317	4. 146	8. 291	12. 437	16. 583	24. 874			
52½	3. 316	4. 145	8. 288	12. 433	16. 577	24. 865			
55	3. 314	4. 142	8. 286	12. 428	16. 571	24. 857			
56¼	3. 313	4. 142	8. 285	12. 426	16. 568	24. 853			
57½	3. 313	4. 141	8. 282	12. 425	16. 566	24. 848			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
25 00	3. 312	4. 140	8. 280	12. 420	16. 560	24. 840
02½	3. 311	4. 139	8. 278	12. 416	16. 555	24. 832
03¾	3. 311	4. 138	8. 276	12. 414	16. 552	24. 828
05	3. 310	4. 138	8. 274	12. 412	16. 549	24. 823
07½	3. 308	4. 136	8. 272	12. 408	16. 543	24. 815
10	3. 307	4. 134	8. 269	12. 403	16. 537	24. 806
11¼	3. 307	4. 134	8. 268	12. 401	16. 535	24. 803
12½	3. 306	4. 133	8. 266	12. 400	16. 532	24. 798
15	3. 305	4. 132	8. 263	12. 395	16. 526	24. 790
17½	3. 304	4. 130	8. 261	12. 390	16. 520	24. 781
18¾	3. 304	4. 129	8. 258	12. 389	16. 518	24. 776
20	3. 304	4. 129	8. 257	12. 386	16. 515	24. 773
22½	3. 302	4. 127	8. 255	12. 382	16. 510	24. 764
25	3. 301	4. 126	8. 252	12. 378	16. 504	24. 756
26¼	3. 300	4. 126	8. 250	12. 376	16. 501	24. 751
27½	3. 300	4. 124	8. 249	12. 373	16. 498	24. 748
30	3. 299	4. 123	8. 246	12. 370	16. 493	24. 739
32½	3. 298	4. 122	8. 244	12. 365	16. 487	24. 731
33¾	3. 296	4. 121	8. 242	12. 362	16. 484	24. 726
35	3. 296	4. 121	8. 240	12. 361	16. 481	24. 721
37½	3. 295	4. 118	8. 238	12. 356	16. 475	24. 713
40	3. 294	4. 117	8. 234	12. 353	16. 470	24. 704
41¼	3. 293	4. 117	8. 233	12. 350	16. 466	24. 700
42½	3. 293	4. 116	8. 232	12. 348	16. 464	24. 696
45	3. 292	4. 115	8. 230	12. 343	16. 458	24. 688
47½	3. 290	4. 114	8. 226	12. 340	16. 452	24. 678
48¾	3. 290	4. 112	8. 225	12. 337	16. 450	24. 674
50	3. 289	4. 111	8. 224	12. 335	16. 447	24. 670
52½	3. 288	4. 110	8. 220	12. 331	16. 441	24. 661
55	3. 287	4. 109	8. 218	12. 326	16. 435	24. 653
56¼	3. 287	4. 108	8. 216	12. 324	16. 433	24. 648
57½	3. 286	4. 108	8. 215	12. 322	16. 429	24. 644

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 25: 1¼	4. 543	0. 000
2½	9. 085	. 001
3¾	13. 628	. 002
5	18. 170	. 005
6¼	22. 714	. 008
7½	27. 256	. 012
10	36. 341	. 020
12½	45. 427	. 031
15	54. 511	. 046

ABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

ABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

atitude of parallel		Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
		Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
		1′	1¼′	2½′	3¾′	5′	7½′			
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
26	00	3.284	4.106	8.212	12.318	16.423	24.636	For latitude 26:		
	02½	3.283	4.104	8.209	12.313	16.418	24.626	1¼	4.543	0.000
	03¾	3.283	4.104	8.208	12.311	16.415	24.623	2½	9.086	.001
	05	3.282	4.103	8.206	12.310	16.412	24.618	3¾	13.630	.002
	07½	3.281	4.102	8.203	12.307	16.406	24.610	5	18.173	.005
								6¼	22.717	.008
	10	3.280	4.100	8.200	12.300	16.400	24.600	7½	27.260	.012
	11¼	3.280	4.099	8.198	12.298	16.398	24.596	10	36.347	.020
	12½	3.278	4.099	8.197	12.296	16.394	24.592	12½	45.433	.032
	15	3.277	4.097	8.195	12.292	16.388	24.583	15	54.520	.047
	17½	3.276	4.096	8.191	12.287	16.382	24.574			
	18¾	3.276	4.094	8.190	12.284	16.380	24.570			
	20	3.275	4.094	8.189	12.283	16.376	24.565			
	22½	3.274	4.093	8.185	12.278	16.372	24.557			
	25	3.272	4.091	8.183	12.274	16.366	24.547			
	26¼	3.272	4.091	8.182	12.271	16.362	24.544			
	27½	3.272	4.090	8.179	12.270	16.360	24.539			
	30	3.271	4.088	8.177	12.265	16.354	24.530			
	32½	3.270	4.087	8.173	12.260	16.348	24.521			
	33¾	3.269	4.086	8.172	12.258	16.344	24.517			
	35	3.269	4.085	8.171	12.256	16.342	24.512			
	37½	3.268	4.084	8.168	12.252	16.336	24.504			
	40	3.267	4.082	8.165	12.247	16.330	24.494			
	41¼	3.265	4.081	8.164	12.245	16.327	24.490			
	42½	3.265	4.081	8.162	12.242	16.324	24.486			
	45	3.264	4.080	8.159	12.239	16.318	24.476			
	47½	3.263	4.078	8.156	12.234	16.312	24.468			
	48¾	3.262	4.078	8.154	12.232	16.309	24.463			
	50	3.262	4.076	8.153	12.229	16.306	24.460			
	52½	3.260	4.075	8.150	12.226	16.300	24.450			
	55	3.259	4.074	8.147	12.221	16.294	24.442			
	56¼	3.258	4.073	8.146	12.218	16.291	24.437			
	57½	3.258	4.072	8.144	12.216	16.288	24.432			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
27 00	3. 257	4. 070	8. 141	12. 211	16. 282	24. 424			
02½	3. 256	4. 069	8. 139	12. 208	16. 276	24. 414	For latitude 27: 1¼	4. 544	0. 000
03¾	3. 254	4. 068	8. 136	12. 205	16. 273	24. 409	2½	9. 088	. 001
05	3. 254	4. 068	8. 135	12. 203	16. 270	24. 406	3¾	13. 632	. 004
07½	3. 253	4. 066	8. 132	12. 198	16. 264	24. 396	5	18. 175	. 005
							6¼	22. 720	. 008
10	3. 252	4. 064	8. 129	12. 193	16. 258	24. 388	7½	27. 264	. 012
11¼	3. 251	4. 063	8. 128	12. 191	16. 255	24. 383	10	36. 352	. 022
12½	3. 251	4. 063	8. 126	12. 188	16. 252	24. 378	12½	45. 440	. 034
15	3. 250	4. 061	8. 123	12. 185	16. 246	24. 368	15	54. 527	. 048
17½	3. 248	4. 060	8. 120	12. 180	16. 240	24. 360			
18¾	3. 246	4. 060	8. 118	12. 178	16. 237	24. 355			
20	3. 246	4. 058	8. 117	12. 175	16. 234	24. 350			
22½	3. 246	4. 057	8. 114	12. 170	16. 228	24. 342			
25	3. 245	4. 056	8. 111	12. 167	16. 222	24. 332			
26¼	3. 244	4. 055	8. 110	12. 164	16. 219	24. 328			
27½	3. 244	4. 054	8. 107	12. 162	16. 216	24. 323			
30	3. 242	4. 052	8. 105	12. 157	16. 210	24. 314			
32½	3. 241	4. 051	8. 101	12. 152	16. 204	24. 305			
33¾	3. 240	4. 050	8. 100	12. 150	16. 200	24. 300			
35	3. 240	4. 049	8. 099	12. 148	16. 198	24. 296			
37½	3. 239	4. 048	8. 095	12. 143	16. 192	24. 287			
40	3. 236	4. 046	8. 093	12. 139	16. 186	24. 277			
41¼	3. 236	4. 045	8. 090	12. 137	16. 182	24. 272			
42½	3. 235	4. 045	8. 089	12. 134	16. 178	24. 269			
45	3. 235	4. 043	8. 087	12. 130	16. 172	24. 259			
47½	3. 233	4. 042	8. 083	12. 125	16. 166	24. 250			
48¾	3. 233	4. 040	8. 082	12. 122	16. 164	24. 245			
50	3. 232	4. 040	8. 081	12. 120	16. 160	24. 241			
52½	3. 230	4. 038	8. 077	12. 115	16. 154	24. 232			
55	3. 229	4. 037	8. 074	12. 112	16. 148	24. 222			
56¼	3. 229	4. 037	8. 072	12. 109	16. 145	24. 217			
57½	3. 228	4. 036	8. 071	12. 107	16. 142	24. 212			

ABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

atitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
8 00	3. 227	4. 034	8. 068	12. 102	16. 135	24. 204	For lat-		
02½	3. 226	4. 032	8. 065	12. 097	16. 129	24. 194	itude 28: 1¼	4. 544	0. 000
03¾	3. 226	4. 032	8. 063	12. 095	16. 127	34. 190	2½	9. 089	. 001
05	3. 224	4. 031	8. 062	12. 092	16. 123	24. 185	3¾	13. 634	. 004
07½	3. 223	4. 030	8. 058	12. 087	16. 117	24. 175	5	18. 178	. 006
							6¼	22. 723	. 008
10	3. 222	4. 027	8. 056	12. 083	16. 111	24. 166	7½	27. 268	. 012
11¼	3. 222	4. 027	8. 053	12. 080	16. 108	24. 161	10	36. 356	. 022
12½	3. 221	4. 026	8. 052	12. 078	16. 104	24. 157	12½	45. 446	. 035
15	3. 220	4. 025	8. 050	12. 073	16. 098	24. 148	15	54. 535	. 049
17½	3. 218	4. 024	8. 046	12. 068	16. 092	24. 138			
18¾	3. 217	4. 022	8. 045	12. 066	16. 088	24. 133			
20	3. 217	4. 021	8. 042	12. 065	16. 086	24. 128			
22½	3. 216	4. 020	8. 040	12. 060	16. 079	24. 119			
25	3. 215	4. 019	8. 036	12. 055	16. 073	24. 109			
26¼	3. 214	4. 018	8. 035	12. 053	16. 070	24. 103			
27½	3. 214	4. 016	8. 033	12. 050	16. 067	24. 100			
30	3. 212	4. 015	8. 030	12. 046	16. 061	24. 091			
32½	3. 211	4. 014	8. 027	12. 041	16. 054	24. 082			
33¾	3. 210	4. 013	8. 026	12. 038	16. 051	24. 077			
35	3. 210	4. 012	8. 024	12. 036	16. 048	24. 072			
37½	3. 209	4. 010	8. 021	12. 031	16. 042	24. 062			
40	3. 208	4. 009	8. 017	12. 026	16. 036	24. 053			
41¼	3. 206	4. 008	8. 016	12. 024	16. 032	24. 048			
42½	3. 205	4. 007	8. 015	12. 022	16. 028	24. 043			
45	3. 204	4. 006	8. 011	12. 017	16. 022	24. 034			
47½	3. 203	4. 004	8. 008	12. 012	16. 016	24. 024			
48¾	3. 203	4. 003	8. 006	12. 010	16. 013	24. 019			
50	3. 202	4. 002	8. 005	12. 007	16. 010	24. 014			
52½	3. 200	4. 001	8. 002	12. 002	16. 003	24. 005			
55	3. 199	4. 000	7. 998	11. 998	15. 997	23. 995			
56¼	3. 199	3. 998	7. 997	11. 995	15. 994	23. 990			
57½	3. 198	3. 997	7. 996	11. 993	15. 991	23. 986			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
29	00	3. 197	3. 996	7. 992	11. 988	15. 984	23. 976
	02½	3. 196	3. 995	7. 988	11. 983	15. 978	23. 966
	03¾	3. 194	3. 994	7. 987	11. 981	15. 974	23. 962
	05	3. 194	3. 992	7. 986	11. 978	15. 971	23. 957
	07½	3. 193	3. 991	7. 982	11. 974	15. 965	23. 947
	10	3. 192	3. 990	7. 979	11. 969	15. 959	23. 938
	11¼	3. 191	3. 989	7. 978	11. 966	15. 955	23. 933
	12½	3. 191	3. 988	7. 976	11. 964	15. 952	23. 928
	15	3. 190	3. 986	7. 973	11. 959	15. 946	23. 918
	17½	3. 188	3. 985	7. 969	11. 954	15. 940	23. 909
	18¾	3. 187	3. 984	7. 968	11. 952	15. 936	23. 904
	20	3. 186	3. 983	7. 967	11. 950	15. 932	23. 899
	22½	3. 185	3. 982	7. 963	11. 945	15. 926	23. 890
	25	3. 184	3. 980	7. 960	11. 940	15. 919	23. 880
	26¼	3. 184	3. 979	7. 958	11. 938	15. 917	23. 875
	27½	3. 182	3. 978	7. 956	11. 935	15. 913	23. 869
	30	3. 181	3. 977	7. 954	11. 930	15. 907	23. 860
	32½	3. 180	3. 976	7. 950	11. 926	15. 900	23. 850
	33¾	3. 179	3. 974	7. 949	11. 923	15. 896	23. 845
	35	3. 179	3. 973	7. 946	11. 920	15. 894	23. 840
	37½	3. 178	3. 972	7. 944	11. 915	15. 887	23. 831
	40	3. 176	3. 970	7. 940	11. 910	15. 881	23. 821
	41¼	3. 175	3. 970	7. 939	11. 908	15. 877	23. 816
	42½	3. 175	3. 968	7. 937	11. 905	15. 874	23. 810
	45	3. 173	3. 967	7. 933	11. 900	15. 868	23. 801
	47½	3. 172	3. 965	7. 931	11. 896	15. 860	23. 791
	48¾	3. 172	3. 965	7. 929	11. 893	15. 858	23. 786
	50	3. 170	3. 964	7. 927	11. 891	15. 854	23. 782
	52½	3. 169	3. 962	7. 924	11. 886	15. 847	23. 772
	55	3. 168	3. 960	7. 920	11. 881	15. 841	23. 761
	56¼	3. 168	3. 960	7. 919	11. 879	15. 838	23. 756
	57½	3. 167	3. 959	7. 918	11. 876	15. 834	23. 752

Ordinate of developed parallel and meridional distances			
Latitude and longitude interval		Meridional distance	Ordinate of developed parallel
°	′	*Inches*	*Inch*
For latitude 29:	1¼	4. 546	0. 000
	2½	9. 090	. 001
	3¾	13. 636	. 004
	5	18. 181	. 006
	6¼	22. 727	. 008
	7½	27. 271	. 013
	10	36. 362	. 023
	12½	45. 454	. 035
	15	54. 544	. 050

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
30 00	3. 166	3. 956	7. 914	11. 870	15. 828	23. 742
02½	3. 164	3. 955	7. 910	11. 866	15. 821	23. 732
03¾	3. 163	3. 954	7. 909	11. 863	15. 818	23. 726
05	3. 163	3. 954	7. 907	11. 861	15. 815	23. 722
07½	3. 162	3. 952	7. 904	11. 856	15. 808	23. 712
10	3. 160	3. 950	7. 901	11. 851	15. 802	23. 702
11¼	3. 160	3. 949	7. 900	11. 849	15. 798	23. 698
12½	3. 158	3. 949	7. 897	11. 846	15. 794	23. 692
15	3. 157	3. 947	7. 894	11. 840	15. 788	23. 682
17½	3. 156	3. 946	7. 891	11. 836	15. 781	23. 672
18¾	3. 156	3. 944	7. 889	11. 833	15. 778	23. 668
20	3. 155	3. 943	7. 888	11. 831	15. 775	23. 663
22½	3. 154	3. 942	7. 884	11. 826	15. 768	23. 652
25	3. 152	3. 941	7. 880	11. 821	15. 762	23. 642
26¼	3. 151	3. 940	7. 879	11. 819	15. 758	23. 638
27½	3. 151	3. 938	7. 877	11. 817	15. 755	23. 632
30	3. 150	3. 937	7. 874	11. 812	15. 748	23. 622
32½	3. 148	3. 935	7. 871	11. 806	15. 742	23. 612
33¾	3. 148	3. 934	7. 868	11. 803	15. 738	23. 606
35	3. 146	3. 934	7. 867	11. 800	15. 734	23. 602
37½	3. 145	3. 932	7. 864	11. 796	15. 727	23. 592
40	3. 144	3. 930	7. 860	11. 791	15. 721	23. 581
41¼	3. 144	3. 930	7. 859	11. 789	15. 718	23. 576
42½	3. 143	3. 929	7. 858	11. 785	15. 714	23. 572
45	3. 142	3. 926	7. 854	11. 780	15. 708	23. 561
47½	3. 140	3. 925	7. 850	11. 776	15. 700	23. 551
48¾	3. 139	3. 924	7. 849	11. 773	15. 697	23. 546
50	3. 139	3. 924	7. 847	11. 771	15. 694	23. 542
52½	3. 138	3. 922	7. 843	11. 766	15. 688	23. 531
55	3. 136	3. 920	7. 841	11. 760	15. 680	23. 521
56¼	3. 136	3. 919	7. 838	11. 758	15. 677	23. 515
57½	3. 134	3. 918	7. 837	11. 755	15. 673	23. 510

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 30: 1¼	4. 456	0. 000
2½	9. 092	. 001
3¾	13. 638	. 004
5	18. 184	. 006
6¼	22. 730	. 008
7½	27. 276	. 013
10	36. 367	. 023
12½	45. 461	. 036
15	54. 552	. 052

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
31	00	3. 133	3. 917	7. 834	11. 750	15. 667	23. 501
	02½	3. 132	3. 916	7. 830	11. 746	15. 660	23. 490
	03¾	3. 131	3. 914	7. 829	11. 742	15. 656	23. 485
	05	3. 131	3. 913	7. 826	11. 740	15. 653	23. 479
	07½	3. 130	3. 912	7. 823	11. 735	15. 647	23. 470
	10	3. 128	3. 910	7. 819	11. 730	15. 640	23. 459
	11¼	3. 127	3. 910	7. 818	11. 728	15. 636	23. 454
	12½	3. 126	3. 908	7. 817	11. 724	15. 632	23. 449
	15	3. 125	3. 906	7. 813	11. 719	15. 625	23. 438
	17½	3. 124	3. 905	7. 810	11. 714	15. 619	23. 429
	18¾	3. 124	3. 904	7. 807	11. 712	15. 616	23. 423
	20	3. 122	3. 904	7. 806	11. 708	15. 612	23. 418
	22½	3. 121	3. 901	7. 802	11. 704	15. 605	23. 407
	25	3. 120	3. 900	7. 799	11. 699	15. 599	23. 398
	26¼	3. 119	3. 899	7. 798	11. 696	15. 595	23. 392
	27½	3. 119	3. 898	7. 795	11. 694	15. 592	23. 387
	30	3. 116	3. 896	7. 793	11. 688	15. 584	23. 377
	32½	3. 115	3. 894	7. 789	11. 683	15. 577	23. 366
	33¾	3. 115	3. 894	7. 787	11. 681	15. 574	23. 362
	35	3. 114	3. 893	7. 786	11. 678	15. 571	23. 356
	37½	3. 113	3. 890	7. 782	11. 672	15. 564	23. 346
	40	3. 112	3. 889	7. 778	11. 668	15. 557	23. 335
	41¼	3. 110	3. 888	7. 777	11. 665	15. 553	23. 330
	42½	3. 110	3. 888	7. 775	11. 663	15. 550	23. 324
	45	3. 109	3. 886	7. 771	11. 657	15. 542	23. 315
	47½	3. 107	3. 884	7. 768	11. 652	15. 536	23. 304
	48¾	3. 107	3. 883	7. 766	11. 650	15. 533	23. 299
	50	3. 105	3. 882	7. 764	11. 647	15. 529	23. 293
	52½	3. 104	3. 881	7. 760	11. 641	15. 522	23. 282
	55	3. 103	3. 878	7. 758	11. 636	15. 515	23. 273
	56¼	3. 102	3. 878	7. 756	11. 634	15. 511	23. 267
	57½	3. 102	3. 877	7. 754	11. 632	15. 508	23. 262

Ordinate of developed parallel and meridional distances			
Latitude and longitude interval		Meridional distance	Ordinate of developed parallel
°	′	*Inches*	*Inch*
For latitude 31:	1¼	4. 547	0. 000
	2½	9. 094	. 001
	3¾	13. 640	. 004
	5	18. 186	. 006
	6¼	22. 734	. 010
	7½	27. 280	. 013
	10	36. 373	. 024
	12½	45. 468	. 037
	15	54. 560	. 053

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel — Longitude interval: 1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
32 00	3.098	3.875	7.751	11.626	15.500	23.251
02½	3.098	3.874	7.747	11.621	15.494	23.240
03¾	3.098	3.872	7.745	11.617	15.491	23.237
05	3.097	3.871	7.744	11.615	15.487	23.231
07½	3.096	3.870	7.740	11.610	15.480	23.221
10	3.095	3.869	7.736	11.605	15.473	23.209
11¼	3.094	3.868	7.734	11.602	15.469	23.204
12½	3.094	3.866	7.733	11.599	15.467	23.198
15	3.091	3.865	7.729	11.594	15.458	23.188
17½	3.090	3.863	7.726	11.588	15.451	23.178
18¾	3.090	3.862	7.724	11.586	15.448	23.172
20	3.089	3.862	7.722	11.584	15.445	23.167
22½	3.088	3.859	7.718	11.579	15.438	23.156
25	3.086	3.858	7.715	11.573	15.431	23.146
26¼	3.085	3.857	7.714	11.570	15.427	23.141
27½	3.085	3.856	7.711	11.568	15.424	23.135
30	3.083	3.854	7.708	11.562	15.416	23.124
32½	3.082	3.852	7.704	11.557	15.409	23.113
33¾	3.082	3.851	7.703	11.554	15.406	23.108
35	3.080	3.851	7.700	11.551	15.402	23.102
37½	3.079	3.848	7.698	11.546	15.395	23.093
40	3.078	3.847	7.694	11.540	15.388	23.082
41¼	3.077	3.846	7.692	11.538	15.384	23.076
42½	3.074	3.845	7.691	11.536	15.380	23.071
45	3.074	3.844	7.687	11.530	15.373	23.060
47½	3.073	3.841	7.684	11.525	15.366	23.050
48¾	3.072	3.841	7.681	11.522	15.362	23.044
50	3.072	3.840	7.680	11.519	15.359	23.039
52½	3.071	3.838	7.676	11.514	15.352	23.028
55	3.068	3.836	7.673	11.508	15.344	23.017
56¼	3.068	3.835	7.670	11.505	15.341	23.011
57½	3.067	3.834	7.669	11.503	15.337	23.006

Ordinate of developed parallel and meridional distances — Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 32: 1¼	4.549	0.000
2½	9.097	.001
3¾	13.646	.004
5	18.194	.006
6¼	22.745	.010
7½	27.293	.013
10	36.391	.024
12½	45.490	.037
15	54.587	.054

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
33 00	3. 066	3. 833	7. 663	11. 497	15. 330	22. 996
02½	3. 065	3. 830	7. 662	11. 492	15. 323	22. 985
03¾	3. 064	3. 830	7. 660	11. 490	15. 319	22. 979
05	3. 064	3. 829	7. 658	11. 486	15. 316	22. 974
07½	3. 061	3. 827	7. 653	11. 482	15. 308	22. 963
10	3. 060	3. 826	7. 651	11. 476	15. 301	22. 952
11¼	3. 060	3. 824	7. 649	11. 473	15. 298	22. 946
12½	3. 059	3. 823	7. 648	11. 471	15. 294	22. 942
15	3. 058	3. 822	7. 644	11. 465	15. 287	22. 931
17½	3. 056	3. 820	7. 640	11. 460	15. 280	22. 920
18¾	3. 055	3. 820	7. 638	11. 458	15. 276	22. 914
20	3. 054	3. 818	7. 637	11. 454	15. 272	22. 909
22½	3. 053	3. 816	7. 632	11. 449	15. 265	22. 897
25	3. 052	3. 815	7. 628	11. 443	15. 258	22. 886
26¼	3. 050	3. 814	7. 627	11. 441	15. 254	22. 882
27½	3. 050	3. 812	7. 625	11. 438	15. 251	22. 876
30	3. 048	3. 811	7. 621	11. 432	15. 244	22. 865
32½	3. 047	3. 809	7. 618	11. 428	15. 236	22. 854
33¾	3. 047	3. 808	7. 616	11. 424	15. 233	22. 848
35	3. 046	3. 808	7. 614	11. 422	15. 229	22. 843
37½	3. 044	3. 805	7. 610	11. 416	15. 221	22. 832
40	3. 043	3. 804	7. 607	11. 411	15. 214	22. 820
41¼	3. 042	3. 803	7. 606	11. 407	15. 210	22. 816
42½	3. 042	3. 802	7. 603	11. 405	15. 206	22. 810
45	3. 040	3. 800	7. 600	11. 400	15. 199	22. 799
47½	3. 038	3. 798	7. 596	11. 394	15. 192	22. 788
48¾	3. 037	3. 797	7. 594	11. 392	15. 188	22. 782
50	3. 037	3. 796	7. 592	11. 388	15. 185	22. 777
52½	3. 036	3. 794	7. 589	11. 383	15. 178	22. 766
55	3. 034	3. 792	7. 585	11. 377	15. 170	22. 754
56¼	3. 034	3. 792	7. 583	11. 375	15. 166	22. 750
57½	3. 032	3. 791	7. 582	11. 372	15. 162	22. 744

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 33: 1¼	4. 440	0. 000
2½	9. 096	. 001
3¾	13. 644	. 004
5	18. 192	. 006
6¼	22. 741	. 010
7½	27. 289	. 013
10	36. 385	. 024
12½	45. 482	. 038
15	54. 577	. 055

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
34 00	3. 031	3. 788	7. 578	11. 366	15. 155	22. 733
02½	3. 030	3. 787	7. 574	11. 360	15. 148	22. 722
03¾	3. 029	3. 786	7. 572	11. 358	15. 144	22. 716
05	3. 028	3. 785	7. 570	11. 356	15. 140	22. 710
07½	3. 026	3. 784	7. 566	11. 350	15. 133	22. 699
10	3. 025	3. 781	7. 562	11. 344	15. 126	22. 688
11¼	3. 024	3. 780	7. 561	11. 341	15. 121	22. 682
12½	-----	-----	7. 559	11. 339	15. 118	22. 678
15	3. 023	3. 778	7. 555	11. 333	15. 110	22. 666
17½	3. 020	3. 775	7. 552	11. 327	15. 103	22. 655
18¾	-----	-----	7. 549	11. 324	15. 100	22. 649
20	3. 019	3. 774	7. 548	11. 322	15. 096	22. 644
22½	3. 018	3. 772	7. 544	11. 316	15. 089	22. 632
25	3. 016	3. 770	7. 541	11. 310	15. 080	22. 621
26¼	-----	3. 769	7. 538	11. 308	15. 077	22. 615
27½	3. 014	3. 768	7. 537	11. 305	15. 073	22. 610
30	3. 013	3. 767	7. 532	11. 299	15. 066	22. 598
32½	3. 012	3. 764	7. 529	11. 293	15. 059	22. 588
33¾	3. 011	3. 763	7. 528	11. 291	15. 054	22. 582
35	3. 010	-----	7. 525	11. 288	15. 050	22. 577
37½	3. 008	3. 761	7. 521	11. 282	15. 043	22. 565
40	3. 007	3. 758	7. 518	11. 276	15. 036	22. 554
41¼	3. 005	-----	7. 516	11. 275	15. 032	22. 548
42½	-----	3. 757	7. 514	11. 272	15. 028	22. 542
45	3. 004	3. 755	7. 511	11. 266	15. 020	22. 531
47½	3. 003	3. 754	7. 506	11. 260	15. 013	22. 519
48¾	3. 002	3. 752	7. 504	11. 257	15. 010	22. 514
50	-----	3. 751	7. 502	11. 254	15. 006	22. 508
52½	3. 001	3. 750	7. 499	11. 249	14. 998	22. 496
55	3. 000	3. 748	7. 495	11. 243	14. 990	22. 486
56¼	2. 998	3. 746	7. 493	11. 240	14. 987	22. 480
57½	2. 996	3. 745	7. 492	11. 237	14. 983	22. 474

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 34: 1¼	4. 549	0. 000
2½	9. 097	. 001
3¾	13. 646	. 004
5	18. 194	. 006
6¼	22. 745	. 010
7½	27. 293	. 014
10	36. 391	. 025
12½	45. 490	. 040
15	54. 587	. 056

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
35 00	2. 995	3. 744	7. 488	11. 231	14. 975	22. 463
02½	2. 994	3. 742	7. 484	11. 226	14. 968	22. 452
03¾	2. 993	3. 740	7. 482	11. 222	14. 964	22. 446
05	2. 992	-----	7. 480	11. 220	14. 960	22. 440
07½	2. 990	3. 738	7. 476	11. 214	14. 952	22. 429
10	2. 989	3. 736	7. 472	11. 209	14. 945	22. 417
11¼	2. 988	-----	7. 470	11. 206	14. 941	22. 411
12½	-----	3. 734	7. 469	11. 203	14. 938	22. 406
15	2. 986	3. 732	7. 465	11. 197	14. 929	22. 394
17½	2. 984	3. 731	7. 460	11. 191	14. 922	22. 382
18¾	2. 983	3. 730	7. 459	11. 189	14. 918	22. 377
20	-----	3. 728	7. 457	11. 185	14. 914	22. 372
22½	2. 981	3. 727	7. 453	11. 180	14. 906	22. 360
25	2. 980	3. 725	7. 450	11. 174	14. 899	22. 349
26¼	2. 978	3. 724	7. 447	11. 171	14. 896	22. 343
27½	-----	3. 722	7. 446	11. 168	14. 891	22. 337
30	2. 977	3. 721	7. 442	11. 162	14. 884	22. 326
32½	2. 975	3. 719	7. 438	11. 156	14. 876	22. 314
33¾	-----	3. 718	7. 436	11. 154	14. 872	22. 308
35	2. 974	-----	7. 434	11. 152	14. 868	22. 302
37½	2. 972	3. 715	7. 430	11. 146	14. 861	22. 291
40	2. 971	3. 713	7. 427	11. 140	14. 852	22. 279
41¼	2. 970	3. 712	7. 424	11. 137	14. 849	22. 273
42½	2. 969	-----	7. 422	11. 134	14. 845	22. 267
45	2. 968	3. 709	7. 418	11. 128	14. 837	22. 256
47½	2. 966	3. 707	7. 415	11. 122	14. 830	22. 244
48¾	2. 965	-----	7. 412	11. 119	14. 826	22. 238
50	2. 964	3. 706	7. 411	11. 117	14. 822	22. 232
52½	2. 963	3. 703	7. 406	11. 111	14. 814	22. 221
55	2. 962	3. 702	7. 403	11. 105	14. 807	22. 210
56¼	2. 960	3. 701	7. 401	11. 102	14. 802	22. 204
57½	2. 959	3. 700	7. 399	11. 099	14. 798	22. 198

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 35: 1¼	4. 549	0. 000
2½	9. 100	. 001
3¾	13. 649	. 004
5	18. 198	. 006
6¼	22. 748	. 010
7½	27. 298	. 013
10	36. 397	. 025
12½	45. 497	. 038
15	54. 595	. 056

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
36 00	2. 958	3. 697	7. 396	11. 093	14. 791	22. 186
02½	2. 957	3. 696	7. 392	11. 087	14. 783	22. 175
03¾	2. 956	3. 695	7. 390	11. 084	14. 779	22. 169
05	2. 956	3. 694	7. 387	11. 081	14. 776	22. 163
07½	2. 953	3. 692	7. 384	11. 076	14. 767	22. 151
10	2. 952	3. 690	7. 380	11. 070	14. 760	22. 140
11¼	2. 951	3. 689	7. 378	11. 066	14. 755	22. 134
12½	2. 951	3. 688	7. 376	11. 064	14. 752	22. 128
15	2. 948	3. 686	7. 372	11. 058	14. 744	22. 116
17½	2. 947	3. 684	7. 368	11. 052	14. 736	22. 104
18¾	2. 946	3. 683	7. 366	11. 050	14. 732	22. 098
20	2. 946	3. 682	7. 364	11. 046	14. 729	22. 092
22½	2. 944	3. 680	7. 361	11. 040	14. 720	22. 081
25	2. 942	3. 678	7. 356	11. 034	14. 712	22. 069
26¼	2. 941	3. 677	7. 355	11. 032	14. 708	22. 063
27½	2. 941	3. 676	7. 352	11. 028	14. 705	22. 057
30	2. 939	3. 674	7. 349	11. 023	14. 696	22. 045
32½	2. 938	3. 672	7. 344	11. 017	14. 689	22. 033
33¾	2. 936	3. 671	7. 343	11. 014	14. 686	22. 027
35	2. 936	3. 671	7. 340	11. 011	14. 681	22. 021
37½	2. 935	3. 668	7. 337	11. 005	14. 674	22. 010
40	2. 933	3. 666	7. 333	10. 999	14. 665	21. 998
41¼	2. 933	3. 665	7. 331	10. 996	14. 662	21. 992
42½	2. 932	3. 665	7. 328	10. 993	14. 658	21. 986
45	2. 930	3. 662	7. 325	10. 987	14. 650	21. 974
47½	2. 928	3. 660	7. 321	10. 981	14. 641	21. 962
48¾	2. 928	3. 660	7. 319	10. 979	14. 638	21. 956
50	2. 927	3. 659	7. 316	10. 975	14. 634	21. 950
52½	2. 926	3. 656	7. 313	10. 969	14. 626	21. 938
55	2. 923	3. 654	7. 309	10. 963	14. 617	21. 926
56¼	2. 923	3. 654	7. 307	10. 961	14. 614	21. 920
57½	2. 922	3. 653	7. 304	10. 957	14. 610	21. 914

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 36: 1¼	4. 550	0. 000
2½	9. 101	. 001
3¾	13. 651	. 004
5	18. 202	. 006
6¼	22. 752	. 010
7½	27. 302	. 014
10	36. 403	. 025
12½	45. 505	. 040
15	54. 605	. 057

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
37 00	2. 921	3. 650	7. 301	10. 951	14. 602	21. 902	For lat-		
02½	2. 918	3. 648	7. 297	10. 945	14. 594	21. 890	itude 37: 1¼	4. 552	0. 000
03¾	2. 918	3. 648	7. 295	10. 943	14. 590	21. 884	2½	9. 102	. 001
05	2. 917	3. 647	7. 292	10. 939	14. 586	21. 878	3¾	13. 654	. 004
07½	2. 916	3. 644	7. 289	10. 933	14. 578	21. 866	5	18. 204	. 006
							6¼	22. 757	. 010
10	2. 914	3. 642	7. 285	10. 927	14. 570	21. 854	7½	27. 308	. 014
11¼	2. 914	3. 642	7. 283	10. 925	14. 566	21. 848	10	36. 409	. 025
12½	2. 912	3. 641	7. 280	10. 921	14. 562	21. 842	12½	45. 512	. 040
15	2. 911	3. 638	7. 277	10. 915	14. 554	21. 830	15	54. 614	. 058
17½	2. 909	3. 636	7. 273	10. 909	14. 545	21. 818			
18¾	2. 909	3. 636	7. 271	10. 907	14. 542	21. 812			
20	2. 908	3. 635	7. 268	10. 903	14. 538	21. 806			
22½	2. 906	3. 632	7. 265	10. 897	14. 530	21. 794			
25	2. 904	3. 630	7. 261	10. 891	14. 521	21. 782			
26¼	2. 904	3. 630	7. 259	10. 889	14. 518	21. 776			
27½	2. 903	3. 629	7. 256	10. 885	14. 514	21. 770			
30	2. 902	3. 626	7. 253	10. 879	14. 506	21. 758			
32½	2. 899	3. 624	7. 249	10. 873	14. 497	21. 746			
33¾	2. 899	3. 624	7. 247	10. 871	14. 494	21. 740			
35	2. 898	3. 623	7. 244	10. 867	14. 490	21. 734			
37½	2. 897	3. 620	7. 241	10. 861	14. 482	21. 722			
40	2. 894	3. 618	7. 237	10. 855	14. 473	21. 710			
41¼	2. 894	3. 617	7. 235	10. 852	14. 470	21. 704			
42¼	2. 893	3. 617	7. 232	10. 849	14. 465	21. 698			
45	2. 892	3. 614	7. 229	10. 843	14. 458	21. 685			
47½	2. 890	3. 612	7. 224	10. 837	14. 449	21. 673			
48¾	2. 888	3. 611	7. 223	10. 834	14. 446	21. 667			
50	2. 888	3. 611	7. 220	10. 831	14. 441	21. 661			
52½	2. 886	3. 608	7. 217	10. 825	14. 432	21. 649			
55	2. 885	3. 606	7. 212	10. 818	14. 425	21. 637			
56¼	2. 884	3. 605	7. 211	10. 816	14. 420	21. 631			
57½	2. 884	3. 604	7. 208	10. 812	14. 417	21. 625			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
38 00	2.881	3.602	7.205	10.806	14.408	21.613
02½	2.880	3.600	7.200	10.800	14.400	21.600
03¾	2.879	3.599	7.198	10.798	14.396	21.594
05	-----	3.598	7.196	10.794	14.392	21.588
07½	2.876	3.596	7.192	10.788	14.384	21.576
10	2.875	3.594	7.188	10.782	14.376	21.564
11¼	2.874	3.593	7.186	10.778	14.371	21.558
12½	-----	3.592	7.183	10.776	14.368	21.551
15	2.872	3.590	7.180	10.770	14.359	21.539
17½	2.870	3.588	7.176	10.761	14.351	21.527
18¾	2.869	3.587	7.174	10.760	14.347	21.521
20	2.869	3.586	7.171	10.757	14.342	21.515
22½	2.867	3.583	7.168	10.751	14.335	21.502
25	2.866	3.582	7.163	10.745	14.327	21.490
26¼	2.864	3.581	7.162	10.741	14.322	21.484
27½	2.863	3.580	7.159	10.739	14.318	21.478
30	2.862	3.577	7.156	10.731	14.310	21.466
32½	2.861	3.576	7.151	10.727	14.302	21.452
33¾	2.859	3.575	7.148	10.723	14.298	21.446
35	2.858	3.574	7.147	10.720	14.293	21.440
37½	2.857	3.571	7.142	10.714	14.285	21.428
40	2.856	3.569	7.139	10.708	14.276	21.415
41¼	2.855	-----	7.136	10.705	14.273	21.409
42½	2.854	3.568	7.134	10.702	14.269	21.403
45	2.852	3.565	7.130	10.696	14.261	21.391
47½	2.850	3.563	7.127	10.690	14.252	21.378
48¾	-----	3.562	7.124	10.686	14.248	21.372
50	2.849	3.561	7.122	10.682	14.244	21.366
52½	2.848	3.559	7.117	10.676	14.236	21.353
55	2.845	3.557	7.114	10.670	14.227	21.341
56¼	2.844	3.556	7.111	10.667	14.222	21.335
57½	2.843	3.554	7.109	10.664	14.219	21.329

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 38: 1¼	4.552	0.000
2½	9.104	.001
3¾	13.656	.004
5	18.208	.006
6¼	22.760	.010
7½	27.312	.014
10	36.415	.025
12½	45.522	.041
15	54.624	.058

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
′	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
39 00	2. 842	3. 553	7. 105	10. 658	14. 210	21. 316
02½	2. 840	3. 551	7. 102	10. 651	14. 202	21. 304
03¾	2. 839	3. 549	7. 099	10. 649	14. 198	21. 298
05	2. 839	3. 548	7. 097	10. 645	14. 194	21. 290
07½	2. 837	3. 546	7. 093	10. 639	14. 185	21. 278
10	2. 836	3. 545	7. 088	10. 633	14. 177	21. 265
11¼	2. 834	3. 544	7. 086	10. 630	14. 173	21. 259
12½	2. 833	3. 542	7. 085	10. 627	14. 168	21. 253
15	2. 832	3. 540	7. 080	10. 620	14. 160	21. 241
17½	2. 831	3. 538	7. 076	10. 614	14. 152	21. 228
18¾	2. 830	3. 536	7. 074	10. 610	14. 148	21. 222
20	2. 828	3. 536	7. 072	10. 608	14. 143	21. 216
22½	2. 827	3. 534	7. 068	10. 602	14. 135	21. 203
25	2. 825	3. 532	7. 063	10. 595	14. 126	21. 190
26¼	2. 825	3. 530	7. 061	10. 592	14. 123	21. 184
27½	2. 824	3. 529	7. 060	10. 589	14. 118	21. 178
30	2. 822	3. 528	7. 055	10. 583	14. 110	21. 166
32½	2. 820	3. 526	7. 051	10. 576	14. 101	21. 152
33¾	2. 820	3. 524	7. 049	10. 573	14. 098	21. 146
35	2. 819	3. 523	7. 046	10. 570	14. 093	21. 139
37½	2. 816	3. 521	7. 043	10. 564	14. 084	21. 127
40	2. 815	3. 520	7. 038	10. 558	14. 076	21. 114
41¼	2. 814	3. 518	7. 036	10. 554	14. 072	21. 108
42½	2. 814	3. 517	7. 034	10. 550	14. 068	21. 102
45	2. 812	3. 515	7. 030	10. 544	14. 059	21. 089
47½	2. 810	3. 512	7. 026	10. 538	14. 051	21. 077
48¾	2. 809	3. 511	7. 024	10. 535	14. 046	21. 070
50	2. 808	3. 510	7. 021	10. 531	14. 042	21. 064
52½	2. 807	3. 509	7. 016	10. 521	14. 034	21. 050
55	2. 806	3. 506	7. 013	10. 519	14. 026	21. 038
56¼	2. 804	3. 505	7. 010	10. 516	14. 021	21. 031
57½	2. 803	3. 504	7. 008	10. 513	14. 017	21. 025

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 39: 1¼	4. 553	0. 000
2½	9. 106	. 001
3¾	13. 658	. 004
5	18. 211	. 006
6¼	22. 764	. 010
7½	27. 317	. 014
10	36. 422	. 026
12½	45. 528	. 041
15	54. 632	. 058

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1: 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
40 00	2. 802	3. 502	7. 004	10. 506	14. 009	21. 012
02½	2. 800	3. 500	7. 000	10. 500	14. 000	21. 000
03¾	2. 800	3. 499	6. 997	10. 496	13. 996	20. 993
05	2. 798	3. 498	6. 996	10. 494	13. 991	20. 987
07½	2. 796	3. 497	6. 991	10. 487	13. 982	20. 975
10	2. 795	3. 493	6. 988	10. 481	13. 974	20. 962
11¼	2. 794	3. 492	6. 985	10. 477	13. 970	20. 954
12½	2. 794	3. 492	6. 983	10. 475	13. 966	20. 948
15	2. 791	3. 490	6. 978	10. 468	13. 957	20. 935
17½	2. 790	3. 487	6. 974	10. 462	13. 949	20. 923
18¾	2. 789	3. 486	6. 972	10. 458	13. 944	20. 916
20	2. 788	3. 485	6. 970	10. 454	13. 940	20. 910
22½	2. 786	3. 482	6. 966	10. 448	13. 932	20. 897
25	2. 785	3. 481	6. 961	10. 442	13. 922	20. 885
26¼	2. 784	3. 480	6. 959	10. 439	13. 919	20. 878
27½	2. 783	3. 479	6. 958	10. 435	13. 914	20. 872
30	2. 782	3. 476	6. 953	10. 429	13. 906	20. 858
32½	2. 779	3. 474	6. 948	10. 423	13. 897	20. 845
33¾	2. 778	3. 473	6. 947	10. 420	13. 892	20. 839
35	2. 778	3. 472	6. 944	10. 416	13. 889	20. 833
37½	2. 776	3. 470	6. 940	10. 410	13. 880	20. 820
40	2. 774	3. 468	6. 936	10. 404	13. 871	20. 807
41¼	2. 773	3. 467	6. 934	10. 400	13. 867	20. 801
42½	2. 772	3. 466	6. 931	10. 397	13. 862	20. 794
45	2. 771	3. 463	6. 926	10. 391	13. 854	20. 780
47½	2. 770	3. 461	6. 923	10. 384	13. 847	20. 767
48¾	2. 768	3. 461	6. 920	10. 381	13. 841	20. 761
50	2. 767	3. 460	6. 918	10. 378	13. 837	20. 755
52½	2. 766	3. 457	6. 914	10. 370	13. 828	20. 742
55	2. 764	3. 455	6. 910	10. 364	13. 819	20. 729
56¼	2. 764	3. 454	6. 907	10. 361	13. 814	20. 723
57½	2. 762	3. 452	6. 905	10. 358	13. 811	20. 717

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 40: 1¼	4. 554	0. 000
2½	9. 107	. 001
3¾	13. 661	. 004
5	18. 214	. 006
6¼	22. 768	. 011
7½	27. 322	. 014
10	36. 428	. 026
12½	45. 536	. 041
15	54. 643	. 059

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

Table I.—*Coordinates for the projection of maps, scale 1: 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
41 00	2. 760	3. 450	6. 901	10. 351	13. 802	20. 702
02½	2. 759	3. 449	6. 896	10. 345	13. 793	20. 689
03¾	2. 758	3. 448	6. 894	10. 342	13. 789	20. 683
05	2. 756	3. 446	6. 893	10. 338	13. 784	20. 677
07½	2. 755	3. 444	6. 888	10. 332	13. 776	20. 664
10	2. 754	3. 442	6. 883	10. 325	13. 768	20. 651
11¼	2. 753	3. 440	6. 881	10. 322	13. 763	20. 644
12½	2. 752	3. 439	6. 880	10. 319	13. 758	20. 638
15	2. 750	3. 437	6. 875	10. 313	13. 750	20. 624
17½	2. 748	3. 436	6. 870	10. 306	13. 741	20. 611
18¾	2. 747	3. 434	6. 869	10. 302	13. 736	20. 605
20	2. 747	3. 434	6. 866	10. 300	13. 732	20. 598
22½	2. 744	3. 431	6. 862	10. 292	13. 723	20. 585
25	2. 743	3. 428	6. 857	10. 286	13. 715	20. 572
26¼	2. 742	3. 427	6. 856	10. 283	13. 710	20. 566
27½	2. 741	3. 426	6. 853	10. 279	13. 706	20. 558
30	2. 740	3. 425	6. 848	10. 273	13. 697	20. 545
32½	2. 737	3. 422	6. 844	10. 266	13. 688	20. 532
33¾	2. 737	3. 421	6. 842	10. 262	13. 684	20. 526
35	2. 736	3. 420	6. 840	10. 260	13. 680	20. 519
37½	2. 735	3. 418	6. 835	10. 253	13. 670	20. 506
40	2. 732	3. 415	6. 830	10. 247	13. 662	20. 492
41¼	2. 731	3. 414	6. 829	10. 243	13. 657	20. 486
42½	2. 731	3. 413	6. 827	10. 240	13. 654	20. 479
45	2. 729	3. 412	6. 822	10. 234	13. 644	20. 466
47½	2. 728	3. 409	6. 817	10. 226	13. 636	20. 453
48¾	2. 726	3. 408	6. 816	10. 223	13. 631	20. 447
50	2. 725	3. 407	6. 814	10. 220	13. 627	20. 440
52½	2. 724	3. 404	6. 809	10. 213	13. 618	20. 426
55	2. 722	3. 402	6. 804	10. 207	13. 609	20. 413
56¼	2. 720	3. 400	6. 803	10. 204	13. 604	20. 407
57½	2. 720	3. 400	6. 800	10. 200	13. 600	20. 400

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 41: 1¼	4. 554	0. 000
2½	9. 108	. 001
3¾	13. 663	. 004
5	18. 217	. 007
6¼	22. 773	. 011
7½	27. 326	. 014
10	36. 434	. 026
12½	45. 544	. 041
15	54. 653	. 059

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
42 00	2. 718	3. 397	6. 796	10. 193	13. 591	20. 387	For lat-		
02½	2. 717	3. 396	6. 791	10. 187	13. 583	20. 374	itude 42: 1¼	4. 555	0. 000
03¾	2. 716	3. 395	6. 788	10. 183	13. 578	20. 366	2½	9. 110	. 001
05	2. 714	3. 394	6. 787	10. 180	13. 573	20. 360	3¾	13. 666	. 004
07½	2. 713	3. 391	6. 782	10. 174	13. 565	20. 347	5	18. 221	. 007
							6¼	22. 776	. 011
10	2. 711	3. 389	6. 778	10. 166	13. 555	20. 334	7½	27. 331	. 014
11¼	2. 711	3. 388	6. 775	10. 164	13. 552	20. 327	10	36. 440	. 026
12½	2. 710	3. 386	6. 773	10. 160	13. 547	20. 320	12½	45. 552	. 041
15	2. 707	3. 384	6. 769	10. 154	13. 538	20. 306	15	54. 662	. 059
17½	2. 706	3. 383	6. 764	10. 147	13. 529	20. 293			
18¾	2. 705	3. 382	6. 762	10. 144	13. 524	20. 287			
20	2. 704	3. 380	6. 760	10. 140	13. 520	20. 280			
22½	2. 702	3. 378	6. 756	10. 133	13. 511	20. 267			
25	2. 700	3. 376	6. 751	10. 127	13. 502	20. 254			
26¼	2. 700	3. 374	6. 749	10. 123	13. 498	20. 246			
27½	2. 699	3. 373	6. 746	10. 120	13. 493	20. 240			
30	2. 696	3. 371	6. 742	10. 114	13. 484	20. 226			
32½	2. 695	3. 368	6. 738	10. 106	13. 475	20. 213			
33¾	2. 694	3. 368	6. 736	10. 103	13. 471	20. 207			
35	2. 693	3. 366	6. 733	10. 099	13. 466	20. 200			
37½	2. 692	3. 365	6. 728	10. 093	13. 458	20. 186			
40	2. 689	3. 362	6. 725	10. 086	13. 448	20. 173			
41¼	2. 689	3. 361	6. 722	10. 082	13. 444	20. 166			
42½	2. 688	2. 360	6. 720	10. 080	13. 440	20. 159			
45	2. 686	3. 358	6. 715	10. 073	13. 430	20. 146			
47½	2. 684	3. 355	6. 710	10. 066	13. 421	20. 132			
48¾	2. 683	3. 354	6. 708	10. 063	13. 417	20. 125			
50	2. 682	3. 353	6. 707	10. 060	13. 412	20. 119			
52½	2. 681	3. 350	6. 702	10. 052	13. 403	20. 105			
55	2. 678	3. 348	6. 697	10. 045	13. 394	20. 092			
56¼	2. 678	3. 348	6. 695	10. 043	13. 390	20. 084			
57½	2. 677	3. 347	6. 692	10. 039	13. 385	20. 078			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
43 00	2. 675	3. 344	6. 689	10. 032	13. 376	20. 065			
02½	2. 674	3. 342	6. 684	10. 026	13. 367	20. 051	For latitude 43: 1¼	4. 556	0. 000
03¾	2. 672	3. 341	6. 682	10. 022	13. 363	20. 045	2½	9. 112	. 001
05	2. 671	3. 340	6. 679	10. 019	13. 358	20. 038	3¾	13. 668	. 004
07½	2. 670	3. 337	6. 674	10. 012	13. 349	20. 024	5	18. 223	. 007
							6¼	22. 780	. 011
10	2. 668	3. 335	6. 670	10. 006	13. 340	20. 010	7½	27. 336	. 014
11¼	2. 668	3. 334	6. 668	10. 002	13. 336	20. 004	10	36. 448	. 026
12½	2. 666	3. 332	6. 666	9. 998	13. 331	19. 997	12½	45. 560	. 042
15	2. 664	3. 330	6. 661	9. 991	13. 322	19. 982	15	54. 572	. 060
17½	2. 663	3. 329	6. 656	9. 985	13. 313	19. 969			
18¾	2. 662	3. 328	6. 654	9. 982	13. 308	19. 962			
20	2. 660	3. 326	6. 652	9. 978	13. 303	19. 956			
22½	2. 659	3. 324	6. 647	9. 971	13. 295	19. 942			
25	2. 657	3. 322	6. 643	9. 965	13. 285	19. 928			
26¼	2. 656	3. 320	6. 641	9. 961	13. 282	19. 922			
27½	2. 656	3. 319	6. 638	9. 958	13. 277	19. 915			
30	2. 653	3. 317	6. 634	9. 950	13. 267	19. 901			
32½	2. 652	3. 314	6. 629	9. 943	13. 259	19. 888			
33¾	2. 651	3. 313	6. 626	9. 941	13. 254	19. 880			
35	2. 650	3. 312	6. 624	9. 937	13. 249	19. 873			
37½	2. 648	3. 310	6. 620	9. 930	13. 240	19. 860			
40	2. 646	3. 307	6. 616	9. 923	13. 231	19. 846			
41¼	2. 645	3. 306	6. 613	9. 919	13. 226	19. 840			
42½	2. 645	3. 305	6. 611	9. 916	13. 222	19. 832			
45	2. 642	3. 304	6. 606	9. 910	13. 212	19. 819			
47½	2. 641	3. 301	6. 601	9. 902	13. 204	19. 805			
48¾	2. 640	3. 300	6. 599	9. 899	13. 199	19. 798			
50	2. 639	3. 299	6. 598	9. 895	13. 194	19. 792			
52½	2. 636	3. 296	6. 593	9. 889	13. 184	19. 777			
55	2. 635	3. 294	6. 588	9. 882	13. 176	19. 764			
56¼	2. 634	3. 293	6. 586	9. 878	13. 171	19. 757			
57½	2. 633	3. 292	6. 583	9. 875	13. 166	19. 750			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
44 00	2.632	3.289	6.578	9.868	13.157	19.736	For latitude 44: 1¼	4.556	0.000
02½	2.629	3.287	6.574	9.862	13.148	19.722	2½	9.113	.001
03¾	2.629	3.286	6.571	9.858	13.144	19.715	3¾	13.670	.004
05	2.628	3.284	6.570	9.854	13.139	19.709	5	18.227	.007
07½	2.626	3.282	6.565	9.847	13.129	19.694	6¼	22.784	.011
10	2.624	3.280	6.560	9.840	13.121	19.681	7½	27.341	.014
11¼	2.623	3.278	6.558	9.836	13.116	19.674	10	36.454	.026
12½	2.622	3.278	6.556	9.834	13.111	19.667	12½	45.569	.042
15	2.621	3.276	6.551	9.827	13.102	19.651	15	54.682	.060
17½	2.618	3.274	6.546	9.820	13.093	19.639			
18¾	2.617	3.272	6.544	9.816	13.088	19.632			
20	2.617	3.271	6.541	9.812	13.084	19.625			
22½	2.615	3.269	6.538	9.805	13.074	19.612			
25	2.612	3.266	6.533	9.799	13.064	19.597			
26¼	2.612	3.265	6.530	9.796	13.061	19.590			
27½	2.611	3.264	6.528	9.792	13.056	19.584			
30	2.609	3.262	6.523	9.785	13.046	19.570			
32½	2.608	3.259	6.518	9.778	13.037	19.555			
33¾	2.606	3.258	6.516	9.774	13.032	19.549			
35	2.605	3.257	6.514	9.770	13.027	19.542			
37½	2.604	3.254	6.509	9.764	13.019	19.528			
40	2.602	3.252	6.504	9.757	13.009	19.513			
41¼	2.600	3.251	6.503	9.754	13.004	19.507			
42½	2.600	3.250	6.500	9.750	13.000	19.500			
45	2.598	3.247	6.496	9.743	12.990	19.486			
47½	2.597	3.245	6.491	9.736	12.982	19.472			
48¾	2.596	3.244	6.488	9.732	12.977	19.465			
50	2.594	3.242	6.486	9.728	12.972	19.458			
52½	2.592	3.241	6.481	9.722	12.962	19.444			
55	2.591	3.239	6.476	9.715	12.953	19.429			
56¼	2.590	3.238	6.474	9.712	12.948	19.423			
57½	2.588	3.236	6.472	9.708	12.944	19.416			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
45 00	2. 587	3. 234	6. 467	9. 701	12. 935	19. 402	For latitude 45:		
02½	2. 585	3. 232	6. 462	9. 694	12. 924	19. 387	1¼	4. 558	0. 000
03¾	2. 584	3. 230	6. 460	9. 690	12. 920	19. 380	2½	9. 115	. 001
05	2. 584	3. 229	6. 457	9. 686	12. 916	19. 373	3¾	13. 673	. 004
07½	2. 581	3. 227	6. 454	9. 679	12. 906	19. 360	5	18. 230	. 007
							6¼	22. 788	. 011
10	2. 579	3. 224	6. 449	9. 673	12. 896	19. 345	7½	27. 346	. 014
11¼	2. 579	3. 223	6. 446	9. 670	12. 892	19. 338	10	36. 461	. 026
12½	2. 578	3. 222	6. 444	9. 666	12. 888	19. 331	12½	45. 576	. 042
15	2. 575	3. 220	6. 439	9. 659	12. 878	19. 316	15	54. 691	. 060
17½	2. 574	3. 217	6. 434	9. 652	12. 869	19. 303			
18¾	2. 573	3. 216	6. 432	9. 648	12. 864	19. 296			
20	2. 572	3. 215	6. 430	9. 644	12. 859	19. 289			
22½	2. 570	3. 212	6. 425	9. 637	12. 850	19. 277			
25	2. 568	3. 210	6. 420	9. 630	12. 840	19. 260			
26¼	2. 567	3. 209	6. 418	9. 626	12. 835	19. 254			
27½	2. 567	3. 208	6. 415	9. 623	12. 830	19. 247			
30	2. 564	3. 205	6. 410	9. 616	12. 822	19. 232			
32½	2. 562	3. 203	6. 406	9. 608	12. 812	19. 218			
33¾	2. 561	3. 202	6. 403	9. 605	12. 808	19. 211			
35	2. 561	3. 200	6. 401	9. 601	12. 803	19. 204			
37½	2. 558	3. 198	6. 396	9. 595	12. 793	19. 189			
40	2. 557	3. 196	6. 391	9. 588	12. 784	19. 175			
41¼	2. 556	3. 194	6. 389	9. 584	12. 779	19. 168			
42½	2. 555	3. 193	6. 388	9. 581	12. 774	19. 162			
45	2. 552	3. 191	6. 383	9. 574	12. 764	19. 147			
47½	2. 551	3. 188	6. 378	9. 566	12. 755	19. 133			
48¾	2. 550	3. 187	6. 376	9. 563	12. 750	19. 126			
50	2. 549	3. 186	6. 373	9. 559	12. 745	19. 118			
52½	2. 548	3. 184	6. 368	9. 552	12. 736	19. 104			
55	2. 545	3. 181	6. 364	9. 545	12. 726	19. 090			
56¼	2. 544	3. 180	6. 361	9. 541	12. 721	19. 082			
57½	2. 543	3. 179	6. 359	9. 538	12. 716	19. 075			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
46	00	2. 542	3. 176	6. 354	9. 530	12. 708	19. 061
	02½	2. 539	3. 174	6. 349	9. 523	12. 698	19. 046
	03¾	2. 539	3. 173	6. 347	9. 520	12. 694	19. 040
	05	2. 538	3. 172	6. 344	9. 516	12. 689	19. 033
	07½	2. 536	3. 169	6. 340	9. 509	12. 679	19. 019
	10	2. 534	3. 167	6. 335	9. 502	12. 670	19. 004
	11¼	2. 533	3. 166	6. 332	9. 498	12. 665	18. 997
	12½	2. 532	3. 164	6. 330	9. 494	12. 660	18. 990
	15	2. 530	3. 162	6. 325	9. 487	12. 650	18. 976
	17½	2. 528	3. 160	6. 320	9. 480	12. 641	18. 961
	18¾	2. 527	3. 158	6. 318	9. 476	12. 636	18. 954
	20	2. 526	3. 157	6. 316	9. 473	12. 631	18. 947
	22½	2. 525	3. 155	6. 311	9. 466	12. 622	18. 932
	25	2. 522	3. 152	6. 306	9. 458	12. 612	18. 918
	26¼	2. 521	3. 151	6. 304	9. 455	12. 607	18. 911
	27½	2. 520	3. 150	6. 301	9. 451	12. 602	18. 904
	30	2. 519	3. 148	6. 296	9. 444	12. 593	18. 889
	32½	2. 516	3. 145	6. 292	9. 437	12. 583	18. 875
	33¾	2. 515	3. 144	6. 289	9. 433	12. 578	18. 868
	35	2. 515	3. 143	6. 287	9. 430	12. 574	18. 860
	37½	2. 513	3. 140	6. 282	9. 422	12. 564	18. 846
	40	2. 510	3. 138	6. 277	9. 415	12. 554	18. 830
	41¼	2. 510	3. 137	6. 275	9. 412	12. 550	18. 823
	42½	2. 509	3. 136	6. 272	9. 408	12. 545	18. 816
	45	2. 507	3. 133	6. 268	9. 401	12. 535	18. 802
	47½	2. 504	3. 131	6. 263	9. 394	12. 526	18. 787
	48¾	2. 504	3. 130	6. 260	9. 390	12. 521	18. 780
	50	2. 503	3. 128	6. 258	9. 387	12. 515	18. 773
	52½	2. 501	3. 126	6. 253	9. 379	12. 505	18. 758
	55	2. 500	3. 124	6. 248	9. 372	12. 496	18. 744
	56¼	2. 498	3. 122	6. 246	9. 368	12. 491	18. 737
	57½	2. 497	3. 121	6. 244	9. 365	12. 486	18. 730

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 46: 1¼	4. 559	0. 000
2½	9. 116	. 001
3¾	13. 675	. 004
5	18. 233	. 007
6¼	22. 793	. 011
7½	27. 350	. 014
10	36. 467	. 026
12½	45. 584	. 042
15	54. 701	. 060

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
		Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
		1′	1¼′	2½′	3¾′	5′	7½′			
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
47	00	2. 495	3. 119	6. 239	9. 358	12. 476	18. 715	For latitude 47:		
	02½	2. 494	3. 116	6. 234	9. 350	12. 467	18. 701	1¼	4. 559	0. 000
	03¾	2. 492	3. 115	6. 230	9. 347	12. 462	18. 692	2½	9. 119	. 001
	05	2. 491	3. 114	6. 228	9. 343	12. 457	18. 685	3¾	13. 678	. 004
	07½	2. 490	3. 112	6. 223	9. 336	12. 448	18. 671	5	18. 236	. 007
								6¼	22. 796	. 011
	10	2. 488	3. 109	6. 218	9. 329	12. 438	18. 656	7½	27. 355	. 014
	11¼	2. 486	3. 108	6. 216	9. 325	12. 433	18. 649	10	36. 473	. 026
	12½	2. 485	3. 107	6. 214	9. 322	12. 428	18. 642	12½	45. 593	. 042
	15	2. 484	3. 104	6. 209	9. 316	12. 419	18. 628	15	54. 710	. 060
	17½	2. 482	3. 102	6. 204	9. 306	12. 409	18. 613			
	18¾	2. 480	3. 101	6. 202	9. 302	12. 403	18. 606			
	20	2. 479	3. 100	6. 199	9. 299	12. 398	18. 599			
	22½	2. 478	3. 097	6. 194	9. 292	12. 389	18. 583			
	25	2. 476	3. 095	6. 190	9. 284	12. 379	18. 569			
	26¼	2. 474	3. 094	6. 187	9. 281	12. 374	18. 562			
	27½	2. 474	3. 092	6. 185	9. 277	12. 370	18. 554			
	30	2. 472	3. 090	6. 180	9. 270	12. 360	18. 540			
	32½	2. 470	3. 088	6. 175	9. 263	12. 350	18. 524			
	33¾	2. 470	3. 086	6. 173	9. 259	12. 346	18. 517			
	35	2. 468	3. 085	6. 170	9. 256	12. 341	18. 510			
	37½	2. 466	3. 083	6. 166	9. 247	12. 330	18. 496			
	40	2. 464	3. 079	6. 161	9. 240	12. 320	18. 481			
	41¼	2. 464	3. 079	6. 157	9. 236	12. 316	18. 473			
	42½	2. 462	3. 078	6. 155	9. 233	12. 311	18. 466			
	45	2. 460	3. 076	6. 150	9. 226	12. 301	18. 451			
	47½	2. 459	3. 073	6. 145	9. 218	12. 292	18. 437			
	48¾	2. 458	3. 072	6. 143	9. 215	12. 287	18. 430			
	50	2. 456	3. 071	6. 140	9. 211	12. 281	18. 422			
	52½	2. 454	3. 068	6. 136	9. 204	12. 271	18. 407			
	55	2. 453	3. 066	6. 131	9. 197	12. 262	18. 392			
	56¼	2. 452	3. 064	6. 128	9. 192	12. 257	18. 385			
	57½	2. 450	3. 062	6. 126	9. 188	12. 252	18. 378			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
48	00	2. 448	3. 060	6. 121	9. 181	12. 242	18. 362
	02½	2. 447	3. 058	6. 116	9. 174	12. 232	18. 348
	03¾	2. 446	3. 056	6. 114	9. 170	12. 227	18. 341
	05	2. 444	3. 055	6. 112	9. 167	12. 222	18. 334
	07½	2. 442	3. 053	6. 106	9. 160	12. 212	18. 318
	10	2. 441	3. 050	6. 101	9. 151	12. 203	18. 304
	11¼	2. 440	3. 049	6. 098	9. 148	12. 198	18. 296
	12½	2. 438	3. 048	6. 096	9. 144	12. 192	18. 289
	15	2. 436	3. 046	6. 091	8. 137	12. 182	18. 274
	17½	2. 435	3. 043	6. 086	9. 130	12. 173	18. 259
	18¾	2. 434	3. 042	6. 084	9. 126	12. 168	18. 252
	20	2. 432	3. 041	6. 082	9. 122	12. 163	18. 245
	22½	2. 430	3. 038	6. 077	9. 115	12. 152	18. 229
	25	2. 429	3. 036	6. 072	9. 107	12. 143	18. 215
	26¼	2. 428	3. 035	6. 070	9. 103	12. 138	18. 208
	27½	2. 426	3. 034	6. 066	9. 100	12. 133	18. 199
	30	2. 424	3. 031	6. 061	9. 092	12. 124	18. 185
	32½	2. 423	3. 029	6. 056	9. 085	12. 113	18. 170
	33¾	2. 422	3. 028	6. 054	9. 082	12. 108	18. 162
	35	2. 420	3. 025	6. 052	9. 077	12. 103	18. 155
	37½	2. 419	3. 023	6. 047	9. 070	12. 094	18. 140
	40	2. 417	3. 020	6. 042	9. 062	12. 083	18. 125
	41¼	2. 416	3. 019	6. 040	9. 059	12. 078	18. 118
	42½	2. 414	3. 018	6. 037	9. 055	12. 073	18. 110
	45	2. 413	3. 016	6. 032	9. 048	12. 064	18. 095
	47½	2. 411	3. 013	6. 026	9. 040	12. 054	18. 080
	48¾	2. 400	3. 012	6. 024	9. 036	12. 048	18. 073
	50	2. 408	3. 011	6. 022	9. 032	12. 043	18. 065
	52½	2. 407	3. 008	6. 017	9. 025	12. 034	18. 050
	55	2. 405	3. 006	6. 012	9. 018	12. 024	18. 035
	56¼	2. 404	3. 005	6. 010	9. 014	12. 018	18. 028
	57½	2. 402	3. 004	6. 006	9. 010	12. 013	18. 020

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 48: 1¼	4. 560	0. 000
2½	9. 120	. 001
3¾	13. 680	. 004
5	18. 240	. 006
6¼	22. 800	. 011
7½	27. 360	. 014
10	36. 480	. 026
12½	45. 601	. 041
15	54. 720	. 060

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
49 00	2. 401	3. 001	6. 001	9. 002	12. 004	18. 005	For lat-		
02½	2. 399	2. 999	5. 996	8. 995	11. 994	17. 990	itude 49: 1¼	4. 561	0. 000
03¾	2. 398	2. 998	5. 994	8. 992	11. 988	17. 983	2½	9. 121	. 001
05	2. 396	2. 996	5. 992	8. 988	11. 983	17. 975	3¾	13. 682	. 004
07½	2. 395	2. 993	5. 987	8. 980	11. 974	17. 960	5	18. 242	. 006
							6¼	22. 805	. 011
10	2. 393	2. 990	5. 982	8. 972	11. 964	17. 945	7½	27. 365	. 014
11¼	2. 392	2. 989	5. 980	8. 969	11. 958	17. 983	10	36. 486	. 026
12½	2. 390	2. 988	5. 977	8. 965	11. 953	17. 930	12½	45. 608	. 041
15	2. 389	2. 987	5. 971	8. 958	11. 944	17. 915	15	54. 730	. 059
17½	2. 387	2. 983	5. 966	8. 950	11. 933	17. 900			
18¾	2. 386	2. 982	5. 964	8. 946	11. 928	17. 892			
20	2. 384	2. 981	5. 962	8. 942	11. 923	17. 885			
22½	2. 383	2. 978	5. 957	8. 935	11. 914	17. 869			
25	2. 381	2. 976	5. 952	8. 927	11. 903	17. 855			
26¼	2. 380	2. 975	5. 948	8. 923	11. 898	17. 846			
27½	2. 378	2. 974	5. 946	8. 920	11. 893	17. 839			
30	2. 376	2. 971	5. 941	8. 912	11. 882	17. 825			
32½	2. 375	2. 968	5. 936	8. 904	11. 873	17. 821			
33¾	2. 374	2. 966	5. 934	8. 900	11. 868	17. 802			
35	2. 372	2. 965	5. 932	8. 897	11. 863	17. 794			
37½	2. 370	2. 963	5. 927	8. 890	11. 852	17. 779			
40	2. 369	2. 960	5. 921	8. 881	11. 843	17. 764			
41¼	2. 368	2. 959	5. 918	8. 878	11. 837	17. 756			
42½	2. 366	2. 958	5. 916	8. 874	11. 830	17. 748			
45	2. 364	2. 956	5. 911	8. 867	11. 822	17. 734			
47½	2. 363	2. 953	5. 906	8. 860	11. 812	17. 718			
48¾	2. 362	2. 952	5. 904	8. 855	11. 807	17. 711			
50	2. 360	2. 951	5. 902	8. 851	11. 802	17. 704			
52½	2. 358	2. 948	5. 896	8. 844	11. 791	17. 688			
55	2. 357	2. 945	5. 891	8. 836	11. 782	17. 672			
56¼	2. 356	2. 944	5. 888	8. 832	11. 777	17. 665			
57½	2. 354	2. 942	5. 886	8. 828	11. 772	17. 657			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
50 00	2.352	2.940	5.881	8.821	11.761	17.642
02½	2.351	2.938	5.875	8.813	11.752	17.627
03¾	2.350	2.936	5.873	8.809	11.746	17.620
05	2.348	2.935	5.870	8.806	11.741	17.611
07½	2.346	2.933	5.866	8.798	11.731	17.597
10	2.344	2.930	5.861	8.790	11.720	17.581
11¼	2.344	2.929	5.858	8.786	11.716	17.574
12½	2.342	2.928	5.855	8.783	11.711	17.566
15	2.340	2.926	5.850	8.776	11.700	17.550
17½	2.338	2.922	5.845	8.767	11.690	17.536
18¾	2.338	2.921	5.843	8.764	11.684	17.527
20	2.336	2.920	5.840	8.760	11.680	17.520
22½	2.334	2.917	5.834	8.752	11.670	17.504
25	2.332	2.915	5.830	8.744	11.659	17.489
26¼	2.330	2.914	5.827	8.741	11.654	17.482
27½	2.330	2.912	5.825	8.737	11.650	17.473
30	2.328	2.910	5.820	8.729	11.639	17.459
32½	2.326	2.908	5.814	8.722	11.629	17.443
33¾	2.324	2.905	5.812	8.718	11.623	17.435
35	2.323	2.904	5.809	8.713	11.618	17.428
37½	2.322	2.902	5.804	8.706	11.609	17.412
40	2.320	2.899	5.800	8.699	11.598	17.398
41¼	2.318	2.898	5.796	8.695	11.593	17.389
42½	2.317	2.897	5.794	8.690	11.587	17.382
45	2.316	2.894	5.789	8.683	11.578	17.366
47½	2.314	2.892	5.784	8.675	11.567	17.351
48¾	2.312	2.891	5.782	8.671	11.562	17.344
50	2.311	2.890	5.778	8.668	11.557	17.335
52½	2.309	2.887	5.773	8.660	11.546	17.320
55	2.308	2.884	5.768	8.652	11.537	17.304
56¼	2.306	2.882	5.766	8.648	11.531	17.297
57½	2.305	2.881	5.762	8.645	11.526	17.290

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 50: 1¼	4.561	0.000
2½	9.124	.001
3¾	13.685	.004
5	18.246	.006
6¼	22.808	.011
7½	27.370	.014
10	36.493	.026
12½	45.617	.041
15	54.740	.059

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

Table I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
51 00	2. 303	2. 879	5. 758	8. 636	11. 515	17. 274	For lat-		
02½	2. 302	2. 876	5. 753	8. 629	11. 506	17. 258	itude 51: 1¼	4. 562	0. 000
03¾	2. 300	2. 875	5. 750	8. 626	11. 500	17. 250	2½	9. 125	. 001
05	2. 299	2. 874	5. 748	8. 621	11. 495	17. 243	3¾	13. 687	. 004
07½	2. 297	2. 872	5. 742	8. 614	11. 485	17. 227	5	18. 250	. 006
							6¼	22. 812	. 010
10	2. 294	2. 868	5. 737	8. 605	11. 474	17. 212	7½	27. 374	. 014
11¼	2. 294	2. 867	5. 735	8. 602	11. 470	17. 203	10	36. 499	. 026
12½	2. 293	2. 866	5. 732	8. 598	11. 464	17. 196	12½	45. 625	. 041
15	2. 291	2. 863	5. 726	8. 591	11. 454	17. 180	15	54. 750	. 059
17½	2. 288	2. 861	5. 722	8. 582	11. 443	17. 165			
18¾	2. 287	2. 860	5. 719	8. 579	11. 438	17. 158			
20	2. 287	2. 858	5. 717	8. 575	11. 434	17. 149			
22½	2. 285	2. 856	5. 711	8. 567	11. 423	17. 134			
25	2. 282	2. 852	5. 706	8. 560	11. 412	17. 118			
26¼	2. 281	2. 851	5. 704	8. 555	11. 407	17. 111			
27½	2. 280	2. 850	5. 701	8. 551	11. 401	17. 102			
30	2. 279	2. 848	5. 695	8. 544	11. 392	17. 087			
32½	2. 276	2. 845	5. 690	8. 536	11. 381	17. 071			
33¾	2. 275	2. 844	5. 688	8. 532	11. 376	17. 064			
35	2. 274	2. 843	5. 686	8. 528	11. 371	17. 056			
37½	2. 272	2. 840	5. 680	8. 520	11. 360	17. 040			
40	2. 270	2. 837	5. 675	8. 513	11. 350	17. 024			
41¼	2. 269	2. 836	5. 672	8. 508	11. 345	17. 017			
42½	2. 268	2. 834	5. 670	8. 504	11. 340	17. 009			
45	2. 267	2. 832	5. 664	8. 497	11. 329	16. 993			
47½	2. 263	2. 830	5. 659	8. 489	11. 318	16. 978			
48¾	2. 262	2. 828	5. 657	8. 485	11. 314	16. 970			
50	2. 262	2. 827	5. 654	8. 482	11. 309	16. 962			
52½	2. 260	2. 825	5. 648	8. 473	11. 298	16. 946			
55	2. 257	2. 822	5. 644	8. 466	11. 287	16. 931			
56¼	2. 256	2. 820	5. 641	8. 461	11. 282	16. 924			
57½	2. 255	2. 819	5. 639	8. 458	11. 276	16. 915			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
52 00	2. 254	2. 816	5. 633	8. 450	11. 267	16. 900
02½	2. 251	2. 814	5. 628	8. 442	11. 256	16. 884
03¾	2. 250	2. 813	5. 626	8. 438	11. 251	16. 876
05	2. 249	2. 812	5. 623	8. 434	11. 245	16. 868
07½	2. 248	2. 809	5. 617	8. 426	11. 236	16. 853
10	2. 245	2. 806	5. 612	8. 418	11. 225	16. 837
11¼	2. 244	2. 804	5. 610	8. 414	11. 219	16. 829
12½	2. 243	2. 803	5. 608	8. 411	11. 214	16. 822
15	2. 240	2. 801	5. 602	8. 402	11. 203	16. 805
17½	2. 239	2. 798	5. 597	8. 395	11. 194	16. 789
18¾	2. 238	2. 797	5. 594	8. 390	11. 188	16. 782
20	2. 237	2. 796	5. 591	8. 387	11. 183	16. 774
22½	2. 234	2. 794	5. 586	8. 380	11. 172	16. 758
25	2. 232	2. 790	5. 581	8. 371	11. 161	16. 742
26¼	2. 231	2. 789	5. 578	8. 368	11. 156	16. 734
27½	2. 231	2. 788	5. 575	8. 363	11. 152	16. 727
30	2. 228	2. 785	5. 570	8. 356	11. 141	16. 711
32½	2. 226	2. 783	5. 564	8. 347	11. 130	16. 694
33¾	2. 225	2. 782	5. 562	8. 344	11. 125	16. 687
35	2. 224	2. 780	5. 560	8. 340	11. 119	16. 679
37½	2. 221	2. 777	5. 555	8. 332	11. 108	16. 663
40	2. 220	2. 774	5. 549	8. 323	11. 099	16. 648
41¼	2. 219	2. 773	5. 546	8. 320	11. 093	16. 639
42½	2. 218	2. 772	5. 544	8. 316	11. 088	16. 632
45	2. 215	2. 770	5. 538	8. 308	11. 077	16. 615
47½	2. 213	2. 767	5. 533	8. 300	11. 066	16. 600
48¾	2. 213	2. 765	5. 531	8. 296	11. 062	16. 592
50	2. 212	2. 764	5. 528	8. 292	11. 056	16. 584
52½	2. 209	2. 761	5. 522	8. 284	11. 046	16. 568
55	2. 207	2. 759	5. 518	8. 276	11. 035	16. 553
56¼	2. 206	2. 758	5. 515	8. 272	11. 029	16. 544
57½	2. 204	2. 756	5. 512	8. 268	11. 024	16. 536

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 52: 1¼	4. 564	0. 000
2½	9. 126	. 001
3¾	13. 690	. 004
5	18. 252	. 006
6¼	22. 816	. 010
7½	27. 379	. 014
10	36. 505	. 026
12½	45. 631	. 041
15	54. 757	. 058

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
53 00	2.203	2.754	5.507	8.261	11.014	16.520	For latitude 53:		
02½	2.201	2.750	5.502	8.252	11.003	16.505	1¼	4.564	0.000
03¾	2.200	2.749	5.498	8.249	10.998	16.496	2½	9.128	.001
05	2.198	2.748	5.496	8.244	10.992	16.489	3¾	13.692	.004
07½	2.196	2.746	5.491	8.237	10.982	16.472	5	18.256	.006
							6¼	22.819	.010
10	2.195	2.743	5.485	8.228	10.972	16.457	7½	27.384	.014
11¼	2.194	2.742	5.483	8.225	10.966	16.448	10	36.511	.025
12½	2.192	2.740	5.480	8.220	10.961	16.441	12½	45.640	.040
15	2.190	2.737	5.474	8.213	10.950	16.424	15	54.767	.058
17½	2.188	2.735	5.470	8.204	10.939	16.409			
18¾	2.186	2.734	5.467	8.201	10.934	16.402			
20	2.185	2.732	5.465	8.196	10.928	16.393			
22½	2.184	2.730	5.459	8.189	10.918	16.378			
25	2.182	2.726	5.454	8.180	10.907	16.361			
26¼	2.180	2.725	5.452	8.177	10.902	16.354			
27½	2.179	2.724	5.448	8.172	10.897	16.345			
30	2.177	2.722	5.443	8.165	10.886	16.330			
32½	2.176	2.719	5.437	8.156	10.876	16.313			
33¾	2.174	2.718	5.435	8.153	10.870	16.306			
35	2.173	2.715	5.432	8.148	10.865	16.297			
37½	2.171	2.713	5.426	8.141	10.854	16.280			
40	2.168	2.711	5.422	8.132	10.843	16.265			
41¼	2.167	2.710	5.419	8.129	10.838	16.256			
42½	2.166	2.708	5.417	8.124	10.832	16.249			
45	2.165	2.706	5.411	8.117	10.822	16.232			
47½	2.162	2.702	5.406	8.108	10.811	16.217			
48¾	2.161	2.701	5.402	8.105	10.806	16.208			
50	2.160	2.700	5.400	8.100	10.800	16.201			
52½	2.158	2.698	5.395	8.093	10.789	16.184			
55	2.156	2.695	5.389	8.084	10.780	16.169			
56¼	2.155	2.694	5.387	8.081	10.774	16.160			
57½	2.154	2.692	5.384	8.076	10.769	16.152			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
54	00	2. 152	2. 689	5. 378	8. 068	10. 758	16. 136
	02½	2. 149	2. 687	5. 374	8. 060	10. 747	16. 120
	03¾	2. 148	2. 686	5. 371	8. 056	10. 741	16. 112
	05	2. 147	2. 684	5. 368	8. 052	10. 736	16. 104
	07½	2. 146	2. 681	5. 363	8. 044	10. 726	16. 088
	10	2. 143	2. 678	5. 357	8. 036	10. 715	16. 072
	11¼	2. 142	2. 677	5. 354	8. 032	10. 709	16. 063
	12½	2. 141	2. 676	5. 352	8. 028	10. 704	16. 056
	15	2. 138	2. 674	5. 346	8. 020	10. 693	16. 039
	17½	2. 136	2. 670	5. 341	8. 011	10. 682	16. 024
	18¾	2. 135	2. 669	5. 339	8. 008	10. 676	16. 015
	20	2. 135	2. 668	5. 335	8. 004	10. 672	16. 007
	22½	2. 132	2. 665	5. 330	7. 996	10. 661	15. 991
	25	2. 130	2. 663	5. 324	7. 987	10. 650	15. 974
	26¼	2. 129	2. 662	5. 322	7. 984	10. 644	15. 967
	27½	2. 128	2. 659	5. 320	7. 979	10. 639	15. 959
	30	2. 125	2. 657	5. 314	7. 972	10. 628	15. 942
	32½	2. 124	2. 654	5. 309	7. 963	10. 618	15. 926
	33¾	2. 123	2. 653	5. 306	7. 958	10. 612	15. 918
	35	2. 122	2. 652	5. 303	7. 955	10. 607	15. 910
	37½	2. 119	2. 648	5. 298	7. 946	10. 596	15. 894
	40	2. 117	2. 646	5. 292	7. 939	10. 585	15. 877
	41¼	2. 116	2. 645	5. 290	7. 934	10. 579	15. 869
	42½	2. 114	2. 644	5. 287	7. 931	10. 574	15. 862
	45	2. 113	2. 641	5. 281	7. 922	10. 564	15. 845
	47½	2. 111	2. 638	5. 276	7. 914	10. 553	15. 829
	48¾	2. 110	2. 636	5. 274	7. 910	10. 547	15. 821
	50	2. 108	2. 635	5. 270	7. 906	10. 542	15. 812
	52½	2. 106	2. 633	5. 266	7. 898	10. 531	15. 796
	55	2. 104	2. 630	5. 260	7. 890	10. 520	15. 780
	56¼	2. 102	2. 628	5. 257	7. 885	10. 514	15. 772
	57½	2. 101	2. 627	5. 255	7. 882	10. 508	15. 763

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 54: 1¼	4. 565	0. 000
2½	9. 130	. 001
3¾	13. 694	. 004
5	18. 259	. 006
6¼	22. 944	. 010
7½	27. 389	. 014
10	36. 517	. 025
12½	45. 647	. 040
15	54. 776	. 056

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
55 00	2.100	2.624	5.249	7.873	10.498	15.748
02½	2.098	2.622	5.244	7.865	10.487	15.731
03¾	2.096	2.621	5.240	7.861	10.482	15.722
05	2.095	2.620	5.238	7.858	10.476	15.714
07½	2.093	2.616	5.233	7.849	10.465	15.698
10	2.090	2.614	5.227	7.841	10.454	15.682
11¼	2.090	2.612	5.225	7.837	10.450	15.673
12½	2.089	2.611	5.222	7.832	10.444	15.666
15	2.087	2.608	5.216	7.824	10.433	15.649
17½	2.084	2.605	5.210	7.817	10.422	15.634
18¾	2.083	2.604	5.208	7.812	10.416	15.624
20	2.082	2.603	5.206	7.808	10.411	15.617
22½	2.080	2.600	5.200	7.800	10.400	15.600
25	2.078	2.597	5.195	7.792	10.390	15.583
26¼	2.077	2.596	5.191	7.788	10.384	15.575
27½	2.076	2.594	5.189	7.783	10.378	15.568
30	2.074	2.592	5.184	7.775	10.367	15.551
32½	2.071	2.590	5.178	7.768	10.356	15.534
33¾	2.070	2.587	5.176	7.763	10.351	15.526
35	2.069	2.586	5.173	7.759	10.345	15.518
37½	2.066	2.584	5.167	7.751	10.334	15.502
40	2.065	2.581	5.161	7.742	10.324	15.485
41¼	2.064	2.580	5.159	7.739	10.318	15.476
42½	2.063	2.578	5.156	7.734	10.313	15.468
45	2.060	2.575	5.150	7.726	10.301	15.452
47½	2.058	2.573	5.146	7.717	10.290	15.436
48¾	2.057	2.572	5.142	7.714	10.285	15.427
50	2.056	2.570	5.140	7.710	10.279	15.419
52½	2.053	2.569	5.134	7.702	10.268	15.402
55	2.052	2.564	5.129	7.693	10.258	15.386
56¼	2.051	2.563	2.126	7.688	10.252	15.378
57½	2.050	2.562	5.123	7.685	10.247	15.370

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 55: 1¼	4.566	0.000
2½	9.131	.001
3¾	13.697	.004
5	18.262	.006
6¼	22.828	.010
7½	27.392	.014
10	36.524	.025
12½	45.655	.040
15	54.786	.057

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
56 00	2. 047	2. 558	5. 118	7. 676	10. 235	15. 353
02½	2. 045	2. 556	5. 112	7. 668	10. 224	15. 336
03¾	2. 044	2. 555	5. 110	7. 664	10. 219	15. 329
05	2. 042	2. 554	5. 107	7. 660	10. 213	15. 320
07½	2. 040	2. 550	5. 101	7. 651	10. 202	15. 304
10	2. 039	2. 548	5. 095	7. 644	10. 192	15. 287
11¼	2. 038	2. 546	5. 093	7. 639	10. 186	15. 278
12½	2. 036	2. 545	5. 090	7. 636	10. 181	15. 270
15	2. 034	2. 543	5. 084	7. 627	10. 169	15. 254
17½	2. 032	2. 539	5. 080	7. 619	10. 158	15. 238
18¾	2. 030	2. 538	5. 076	7. 614	10. 153	15. 229
20	2. 029	2. 537	5. 074	7. 610	10. 147	15. 221
22½	2. 027	2. 534	5. 068	7. 608	10. 136	15. 204
25	2. 024	2. 531	5. 063	7. 594	10. 124	15. 187
26¼	2. 024	2. 530	5. 059	7. 590	10. 120	15. 179
27½	2. 023	2. 528	5. 057	7. 585	10. 114	15. 170
30	2. 021	2. 526	5. 052	7. 577	10. 103	15. 155
32½	2. 018	2. 522	5. 046	7. 568	10. 092	15. 138
33¾	2. 017	2. 521	5. 044	7. 565	10. 086	15. 130
35	2. 016	2. 520	5. 040	7. 560	10. 081	15. 121
37½	2. 014	2. 518	5. 035	7. 553	10. 069	15. 104
40	2. 011	2. 515	5. 029	7. 544	10. 058	15. 088
41¼	2. 010	2. 513	5. 027	7. 540	10. 052	15. 079
42½	2. 010	2. 512	5. 023	7. 536	10. 048	15. 071
45	2. 008	2. 509	5. 018	7. 528	10. 037	15. 054
47½	2. 005	2. 507	5. 012	7. 519	10. 025	15. 037
48¾	2. 004	2. 504	5. 010	7. 514	10. 020	15. 030
50	2. 003	2. 503	5. 008	7. 511	10. 014	15. 022
52½	2. 000	2. 501	5. 002	7. 502	10. 003	15. 005
55	1. 998	2. 498	4. 996	7. 494	9. 992	14. 988
56¼	1. 997	2. 496	4. 993	7. 489	9. 986	14. 980
57½	1. 996	2. 495	4. 991	7. 486	9. 980	14. 971

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 56: 1¼	4. 566	0. 000
2½	9. 132	. 001
3¾	13. 699	. 004
5	18. 265	. 006
6¼	22. 831	. 010
7½	27. 397	. 014
10	36. 530	. 025
12½	45. 662	. 038
15	54. 794	. 055

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel		Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
		Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
		1′	1¼′	2½′	3¾′	5′	7½′			
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
57	00	1. 994	2. 492	4. 985	7. 477	9. 970	14. 954	For lat-		
	02½	1. 992	2. 490	4. 979	7. 469	9. 959	14. 938	itude 57: 1¼	4. 567	0. 000
	03¾	1. 991	2. 489	4. 976	7. 465	9. 953	14. 929	2½	9. 134	. 001
	05	1. 990	2. 486	4. 974	7. 460	9. 947	14. 921	3¾	13. 700	. 004
	07½	1. 987	2. 484	4. 968	7. 452	9. 936	14. 904	5	18. 268	. 006
								6¼	22. 835	. 010
	10	1. 985	2. 482	4. 962	7. 444	9. 925	14. 887	7½	27. 402	. 013
	11¼	1. 984	2. 480	4. 960	7. 440	9. 919	14. 879	10	36. 536	. 024
	12½	1. 982	2. 478	4. 957	7. 435	9. 913	14. 870	12½	45. 670	. 038
	15	1. 980	2. 476	4. 951	7. 427	9. 902	14. 854	15	54. 804	. 055
	17½	1. 979	2. 473	4. 945	7. 418	9. 892	14. 837			
	18¾	1. 978	2. 472	4. 943	7. 415	9. 886	14. 828			
	20	1. 976	2. 470	4. 940	7. 410	9. 881	14. 820			
	22½	1. 974	2. 467	4. 934	7. 402	9. 869	14. 803			
	25	1. 972	2. 465	4. 928	7. 393	9. 858	14. 786			
	26¼	1. 970	2. 464	4. 926	7. 390	9. 852	14. 778			
	27½	1. 969	2. 461	4. 924	7. 385	9. 847	14. 770			
	30	1. 967	2. 459	4. 918	7. 376	9. 835	14. 753			
	32½	1. 964	2. 456	4. 912	7. 368	9. 824	14. 736			
	33¾	1. 963	2. 455	4. 909	7. 364	9. 818	14. 728			
	35	1. 963	2. 453	4. 907	7. 360	9. 814	14. 719			
	37½	1. 961	2. 450	4. 901	7. 351	9. 802	14. 702			
	40	1. 958	2. 448	4. 895	7. 343	9. 791	14. 686			
	41¼	1. 957	2. 447	4. 892	7. 339	9. 785	14. 677			
	42½	1. 956	2. 444	4. 890	7. 334	9. 779	14. 669			
	45	1. 954	2. 442	4. 884	7. 326	9. 768	14. 652			
	47½	1. 951	2. 440	4. 878	7. 318	9. 757	14. 635			
	48¾	1. 950	2. 438	4. 876	7. 314	9. 751	14. 627			
	50	1. 949	2. 436	4. 873	7. 309	9. 745	14. 618			
	52½	1. 946	2. 434	4. 867	7. 301	9. 734	14. 602			
	55	1. 945	2. 431	4. 861	7. 292	9. 724	14. 585			
	56¼	1. 944	2. 429	4. 859	7. 288	9. 718	14. 576			
	57½	1. 943	2. 428	4. 856	7. 284	9. 712	14. 568			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
58 00	1. 940	2. 425	4. 850	7. 276	9. 701	14. 551
02½	1. 938	2. 423	4. 844	7. 267	9. 689	14. 534
03¾	1. 937	2. 420	4. 842	7. 262	9. 684	14. 526
05	1. 936	2. 419	4. 840	7. 259	9. 678	14. 518
07½	1. 933	2. 417	4. 834	7. 250	9. 667	14. 501
10	1. 931	2. 414	4. 828	7. 242	9. 655	14. 483
11¼	1. 930	2. 412	4. 825	7. 237	9. 650	14. 474
12½	1. 928	2. 411	4. 822	7. 234	9. 644	14. 466
15	1. 926	2. 408	4. 817	7. 225	9. 632	14. 449
17½	1. 925	2. 406	4. 811	7. 217	9. 622	14. 432
18¾	1. 924	2. 404	4. 808	7. 212	9. 616	14. 424
20	1. 922	2. 402	4. 805	7. 207	9. 611	14. 416
22½	1. 920	2. 400	4. 800	7. 199	9. 599	14. 399
25	1. 918	2. 396	4. 794	7. 190	9. 588	14. 382
26¼	1. 916	2. 395	4. 792	7. 187	9. 582	14. 374
27½	1. 915	2. 394	4. 788	7. 182	9. 576	14. 364
30	1. 913	2. 392	4. 782	7. 174	9. 565	14. 347
32½	1. 910	2. 388	4. 777	7. 165	9. 553	14. 330
33¾	1. 909	2. 387	4. 774	7. 162	9. 548	14. 322
35	1. 908	2. 386	4. 771	7. 157	9. 542	14. 314
37½	1. 907	2. 383	4. 765	7. 148	9. 532	14. 297
40	1. 904	2. 380	4. 760	7. 140	9. 520	14. 280
41¼	1. 903	2. 378	4. 757	7. 135	9. 514	14. 270
42½	1. 902	2. 377	4. 754	7. 132	9. 509	14. 262
45	1. 900	2. 375	4. 748	7. 123	9. 497	14. 245
47½	1. 897	2. 371	4. 742	7. 115	9. 486	14. 228
48¾	1. 896	2. 370	4. 740	7. 110	9. 480	14. 220
50	1. 895	2. 369	4. 738	7. 105	9. 474	14. 212
52½	1. 892	2. 365	4. 732	7. 097	9. 463	14. 195
55	1. 890	2. 363	4. 726	7. 088	9. 451	14. 177
56¼	1. 889	2. 362	4. 723	7. 085	9. 445	14. 168
57½	1. 888	2. 360	4. 720	7. 080	9. 440	14. 160

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 58: 1¼	4. 567	0. 000
2½	9. 136	. 001
3¾	13. 703	. 004
5	18. 271	. 006
6¼	22. 838	. 010
7½	27. 407	. 013
10	36. 541	. 024
12½	45. 677	. 037
15	54. 812	. 054

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
59 00	1. 885	2. 357	4. 715	7. 072	9. 428	14. 143
02½	1. 884	2. 354	4. 709	7. 063	9. 418	14. 126
03¾	1. 883	2. 353	4. 706	7. 058	9. 412	14. 118
05	1. 882	2. 352	4. 703	7. 055	9. 406	14. 108
07½	1. 879	2. 348	4. 697	7. 046	9. 395	14. 092
10	1. 877	2. 346	4. 692	7. 037	9. 383	14. 075
11¼	1. 876	2. 345	4. 688	7. 033	9. 377	14. 066
12½	1. 874	2. 342	4. 686	7. 028	9. 372	14. 058
15	1. 872	2. 340	4. 680	7. 020	9. 360	14. 040
17½	1. 870	2. 338	4. 674	7. 012	9. 349	14. 023
18¾	1. 868	2. 335	4. 672	7. 007	9. 343	14. 015
20	1. 867	2. 334	4. 669	7. 003	9. 337	14. 006
22½	1. 865	2. 332	4. 663	6. 995	9. 326	13. 988
25	1. 862	2. 329	4. 657	6. 986	9. 314	13. 972
26¼	1. 861	2. 327	4. 655	6. 982	9. 308	13. 963
27½	1. 861	2. 326	4. 651	6. 977	9. 304	13. 955
30	1. 859	2. 323	4. 646	6. 968	9. 292	13. 938
32½	1. 856	2. 320	4. 640	6. 960	9. 280	13. 920
33¾	1. 855	2. 318	4. 637	6. 956	9. 275	13. 912
35	1. 854	2. 317	4. 634	6. 952	9. 269	13. 903
37½	1. 852	2. 315	4. 628	6. 943	9. 257	13. 886
40	1. 849	2. 311	4. 622	6. 935	9. 246	13. 868
41¼	1. 848	2. 310	4. 620	6. 930	9. 240	13. 860
42½	1. 847	2. 309	4. 618	6. 925	9. 234	13. 852
45	1. 844	2. 305	4. 612	6. 917	9. 223	13. 835
47½	1. 842	2. 303	4. 606	6. 908	9. 211	13. 817
48¾	1. 841	2. 302	4. 603	6. 905	9. 205	13. 808
50	1. 840	2. 300	4. 600	6. 900	9. 200	13. 800
52½	1. 837	2. 297	4. 594	6. 892	9. 188	13. 782
55	1. 835	2. 294	4. 589	6. 883	9. 176	13. 765
56¼	1. 835	2. 293	4. 585	6. 878	9. 172	13. 757
57½	1. 834	2. 291	4. 583	6. 874	9. 166	13. 748

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 59: 1¼	4. 568	0. 000
2½	9. 137	. 001
3¾	13. 705	. 004
5	18. 274	. 006
6¼	22. 842	. 010
7½	27. 410	. 013
10	36. 547	. 024
12½	45. 684	. 037
15	54. 821	. 053

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
60 00	1. 831	2. 288	4. 577	6. 865	9. 154	13. 730
02½	1. 829	2. 286	4. 571	6. 857	9. 143	13. 714
03¾	1. 828	2. 284	4. 568	6. 852	9. 137	13. 705
05	1. 826	2. 282	4. 566	6. 848	9. 131	13. 697
07½	1. 824	2. 280	4. 560	6. 840	9. 119	13. 679
10	1. 822	2. 276	4. 554	6. 830	9. 108	13. 662
11¼	1. 820	2. 275	4. 552	6. 827	9. 102	13. 654
12½	1. 819	2. 274	4. 548	6. 822	9. 096	13. 644
15	1. 817	2. 272	4. 542	6. 814	9. 085	13. 627
17½	1. 814	2. 268	4. 536	6. 805	9. 073	13. 609
18¾	1. 813	2. 267	4. 534	6. 800	9. 067	13. 601
20	1. 812	2. 266	4. 531	6. 797	9. 061	13. 592
22½	1. 810	2. 262	4. 525	6. 787	9. 050	13. 576
25	1. 807	2. 260	4. 519	6. 779	9. 038	13. 558
26¼	1. 806	2. 258	4. 517	6. 774	9. 032	13. 549
27½	1. 805	2. 257	4. 513	6. 770	9. 026	13. 541
30	1. 804	2. 254	4. 507	6. 762	9. 016	13. 523
32½	1. 801	2. 251	4. 502	6. 752	9. 004	13. 506
33¾	1. 800	2. 250	4. 499	6. 749	8. 998	13. 498
35	1. 799	2. 248	4. 496	6. 744	8. 993	13. 488
37½	1. 796	2. 245	4. 490	6. 736	8. 981	13. 471
40	1. 794	2. 243	4. 484	6. 727	8. 969	13. 453
41¼	1. 793	2. 240	4. 482	6. 722	8. 963	13. 445
42½	1. 792	2. 239	4. 478	6. 718	8. 958	13. 436
45	1. 789	2. 237	4. 472	6. 709	8. 946	13. 418
47½	1. 787	2. 233	4. 468	6. 701	8. 934	13. 402
48¾	1. 786	2. 232	4. 464	6. 696	8. 928	13. 393
50	1. 784	2. 231	4. 462	6. 692	8. 923	13. 384
52½	1. 782	2. 227	4. 456	6. 683	8. 911	13. 367
55	1. 780	2. 225	4. 450	6. 674	8. 899	13. 349
56¼	1. 778	2. 224	4. 447	6. 671	8. 893	13. 340
57½	1. 777	2. 222	4. 444	6. 666	8. 888	13. 332

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 60: 1¼	4. 570	0. 000
2½	9. 138	. 001
3¾	13. 708	. 004
5	18. 277	. 006
6¼	22. 846	. 010
7½	27. 415	. 013
10	36. 553	. 023
12½	45. 691	. 036
15	54. 830	. 052

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
61 00	1.775	2.219	4.438	6.658	8.876	13.314			
02½	1.772	2.216	4.433	6.648	8.864	13.297	For latitude 61: 1¼	4.570	0.000
03¾	1.771	2.215	4.429	6.644	8.858	13.288	2½	9.139	.001
05	1.771	2.213	4.427	6.640	8.852	13.279	3¾	13.710	.004
07½	1.769	2.210	4.421	6.631	8.842	13.262	5	18.280	.006
							6¼	22.849	.008
10	1.766	2.208	4.415	6.623	8.830	13.244	7½	27.419	.013
11¼	1.765	2.206	4.412	6.618	8.824	13.236	10	36.559	.023
12½	1.764	2.204	4.409	6.613	8.818	13.228	12½	45.698	.035
15	1.762	2.202	4.403	6.605	8.807	13.210	15	54.839	.050
17½	1.759	2.198	4.397	6.596	8.795	13.192			
18¾	1.758	2.197	4.394	6.592	8.789	13.183			
20	1.757	2.196	4.392	6.587	8.783	13.175			
22½	1.754	2.192	4.386	6.578	8.771	13.157			
25	1.752	2.190	4.380	6.570	8.760	13.140			
26¼	1.751	2.189	4.376	6.565	8.754	13.130			
27½	1.750	2.188	4.374	6.562	8.748	13.122			
30	1.747	2.184	4.368	6.552	8.736	13.104			
32½	1.745	2.182	4.362	6.544	8.725	13.087			
33¾	1.744	2.179	4.360	6.539	8.719	13.079			
35	1.742	2.178	4.356	6.535	8.713	13.069			
37½	1.740	2.176	4.351	6.526	8.701	13.052			
40	1.738	2.172	4.345	6.517	8.689	13.034			
41¼	1.736	2.171	4.342	6.512	8.683	13.026			
42½	1.735	2.170	4.339	6.509	8.678	13.016			
45	1.733	2.166	4.333	6.499	8.666	13.000			
47½	1.730	2.164	4.327	6.491	8.654	12.982			
48¾	1.729	2.162	4.325	6.486	8.648	12.973			
50	1.728	2.161	4.321	6.482	8.642	12.964			
52½	1.727	2.158	4.315	6.473	8.632	12.947			
55	1.724	2.155	4.309	6.464	8.620	12.929			
56¼	1.723	2.153	4.307	6.460	8.614	12.920			
57½	1.722	2.152	4.303	6.456	8.608	12.911			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
62 00	1.720	2.149	4.298	6.446	8.596	12.894	For latitude 62:		
02½	1.717	2.146	4.292	6.438	8.584	12.876	1¼	4.571	0.000
03¾	1.716	2.144	4.289	6.433	8.579	12.868	2½	9.142	.001
05	1.715	2.143	4.286	6.430	8.573	12.858	3¾	13.711	.004
07½	1.712	2.140	4.280	6.420	8.561	12.841	5	18.282	.006
							6¼	22.853	.008
10	1.710	2.137	4.274	6.412	8.549	12.823	7½	27.424	.012
11¼	1.709	2.136	4.272	6.407	8.543	12.815	10	36.564	.022
12½	1.708	2.135	4.268	6.403	8.538	12.805	12½	45.706	.035
15	1.705	2.131	4.262	6.394	8.525	12.788	15	54.846	.049
17½	1.703	2.129	4.256	6.385	8.514	12.770			
18¾	1.702	2.126	4.254	6.380	8.508	12.762			
20	1.700	2.125	4.250	6.377	8.502	12.752			
22½	1.698	2.123	4.246	6.367	8.490	12.736			
25	1.696	2.119	4.240	6.359	8.478	12.718			
26¼	1.694	2.118	4.236	6.354	8.472	12.708			
27½	1.693	2.117	4.234	6.350	8.466	12.700			
30	1.691	2.113	4.228	6.341	8.455	12.682			
32½	1.688	2.111	4.222	6.332	8.443	12.665			
33¾	1.687	2.110	4.218	6.328	8.437	12.655			
35	1.686	2.107	4.216	6.323	8.431	12.647			
37½	1.684	2.105	4.210	6.314	8.419	12.629			
40	1.681	2.102	4.204	6.306	8.407	12.611			
41¼	1.680	2.100	4.201	6.301	8.401	12.602			
42½	1.679	2.099	4.198	6.296	8.395	12.594			
45	1.676	2.096	4.192	6.288	8.383	12.576			
47½	1.674	2.093	4.186	6.278	8.372	12.558			
48¾	1.673	2.092	4.183	6.275	8.366	12.550			
50	1.672	2.090	4.180	6.270	8.360	12.540			
52½	1.669	2.087	4.174	6.262	8.348	12.522			
55	1.667	2.084	4.169	6.252	8.336	12.505			
56¼	1.666	2.083	4.165	6.248	8.330	12.496			
57½	1.664	2.081	4.163	6.244	8.324	12.487			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
63 00	1. 662	2. 078	4. 157	6. 234	8. 312	12. 469	For latitude 63:		
02½	1. 660	2. 075	4. 151	6. 226	8. 300	12. 451	1¼	4. 571	0. 000
03¾	1. 660	2. 074	4. 147	6. 221	8. 296	12. 443	2½	9. 143	. 001
05	1. 658	2. 072	4. 145	6. 217	8. 290	12. 433	3¾	13. 714	. 004
07½	1. 656	2. 069	4. 139	6. 208	8. 278	12. 416	5	18. 284	. 005
							6¼	22. 856	. 008
10	1. 654	2. 066	4. 133	6. 199	8. 266	12. 398	7½	27. 427	. 012
11¼	1. 652	2. 065	4. 129	6. 194	8. 260	12. 389	10	36. 570	. 022
12½	1. 651	2. 063	4. 127	6. 190	8. 254	12. 380	12½	45. 712	. 034
15	1. 649	2. 060	4. 121	6. 181	8. 242	12. 362	15	54. 854	. 048
17½	1. 646	2. 058	4. 115	6. 173	8. 230	12. 344			
18¾	1. 645	2. 056	4. 112	6. 168	8. 224	12. 336			
20	1. 644	2. 054	4. 109	6. 163	8. 218	12. 326			
22½	1. 642	2. 052	4. 103	6. 155	8. 206	12. 308			
25	1. 639	2. 048	4. 097	6. 145	8. 194	12. 292			
26¼	1. 638	2. 047	4. 094	6. 142	8. 188	12. 282			
27½	1. 637	2. 046	4. 091	6. 137	8. 183	12. 274			
30	1. 634	2. 042	4. 085	6. 127	8. 171	12. 256			
32½	1. 632	2. 040	4. 079	6. 119	8. 159	12. 238			
33¾	1. 631	2. 038	4. 076	6. 114	8. 153	12. 229			
35	1. 630	2. 036	4. 073	6. 110	8. 147	12. 220			
37½	1. 627	2. 034	4. 067	6. 101	8. 135	12. 202			
40	1. 625	2. 030	4. 061	6. 092	8. 123	12. 184			
41¼	1. 624	2. 029	4. 058	6. 088	8. 117	12. 175			
42½	1. 622	2. 028	4. 055	6. 083	8. 111	12. 166			
45	1. 620	2. 024	4. 050	6. 074	8. 099	12. 149			
47½	1. 618	2. 022	4. 044	6. 065	8. 087	12. 131			
48¾	1. 616	2. 021	4. 040	6. 061	8. 081	12. 121			
50	1. 615	2. 018	4. 038	6. 056	8. 075	12. 113			
52½	1. 613	2. 016	4. 032	6. 047	8. 063	12. 095			
55	1. 610	2. 012	4. 026	6. 038	8. 051	12. 077			
56¼	1. 609	2. 011	4. 022	6. 034	8. 045	12. 067			
57½	1. 608	2. 010	4. 020	6. 029	8. 039	12. 059			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
64 00	1. 606	2. 006	4. 014	6. 020	8. 027	12. 041
02½	1. 603	2. 004	4. 008	6. 012	8. 015	12. 023
03¾	1. 602	2. 003	4. 004	6. 007	8. 009	12. 014
05	1. 601	2. 000	4. 002	6. 002	8. 003	12. 005
07½	1. 598	1. 998	3. 996	5. 994	7. 991	11. 987
10	1. 596	1. 994	3. 990	5. 984	7. 979	11. 969
11¼	1. 595	1. 993	3. 986	5. 980	7. 973	11. 960
12½	1. 594	1. 992	3. 984	5. 976	7. 967	11. 951
15	1. 591	1. 988	3. 978	5. 966	7. 955	11. 933
17½	1. 589	1. 986	3. 972	5. 958	7. 944	11. 915
18¾	1. 588	1. 985	3. 968	5. 953	7. 938	11. 906
20	1. 586	1. 982	3. 966	5. 948	7. 932	11. 897
22½	1. 584	1. 980	3. 960	5. 940	7. 920	11. 879
25	1. 582	1. 976	3. 954	5. 930	7. 908	11. 861
26¼	1. 580	1. 975	3. 950	5. 926	7. 902	11. 852
27½	1. 579	1. 974	3. 948	5. 922	7. 896	11. 843
30	1. 577	1. 970	3. 942	5. 912	7. 884	11. 825
32½	1. 574	1. 968	3. 936	5. 904	7. 872	11. 807
33¾	1. 573	1. 967	3. 932	5. 899	7. 866	11. 798
35	1. 572	1. 964	3. 930	5. 894	7. 860	11. 789
37½	1. 570	1. 962	3. 924	5. 886	7. 848	11. 771
40	1. 567	1. 958	3. 918	5. 876	7. 835	11. 753
41¼	1. 566	1. 957	3. 914	5. 872	7. 829	11. 744
42½	1. 565	1. 956	3. 912	5. 868	7. 823	11. 735
45	1. 562	1. 952	3. 906	5. 858	7. 811	11. 717
47½	1. 560	1. 950	3. 900	5. 850	7. 799	11. 699
48¾	1. 559	1. 949	3. 896	5. 845	7. 793	11. 690
50	1. 558	1. 946	3. 894	5. 840	7. 787	11. 681
52½	1. 555	1. 944	3. 888	5. 832	7. 775	11. 663
55	1. 553	1. 940	3. 882	5. 822	7. 763	11. 645
56¼	1. 552	1. 939	3. 878	5. 818	7. 757	11. 635
57½	1. 550	1. 938	2. 876	5. 813	7. 751	11. 627

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 64: 1¼	4. 572	0. 000
2½	9. 144	. 001
3¾	13. 716	. 002
5	18. 288	. 005
6¼	22. 859	. 008
7½	27. 431	. 012
10	36. 575	. 020
12½	45. 719	. 032
15	54. 863	. 047

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
65 00	1.548	1.934	3.870	5.804	7.739	11.609	For lat-		
02½	1.546	1.932	3.864	5.795	7.727	11.591	itude 65: 1¼	4.572	0.000
03¾	1.544	1.931	3.860	5.791	7.721	11.581	2½	9.145	.001
05	1.543	1.928	3.858	5.786	7.715	11.573	3¾	13.717	.002
07½	1.541	1.926	3.852	5.777	7.703	11.555	5	18.290	.005
							6¼	22.862	.008
10	1.538	1.922	3.846	5.768	7.691	11.537	7½	27.434	.012
11¼	1.537	1.921	3.842	5.764	7.685	11.527	10	36.580	.020
12½	1.536	1.920	3.839	5.759	7.679	11.518	12½	45.725	.032
15	1.534	1.916	3.833	5.750	7.667	11.500	15	54.870	.046
17½	1.531	1.914	3.827	5.741	7.655	11.482			
18¾	1.530	1.912	3.824	5.736	7.649	11.473			
20	1.529	1.910	3.821	5.732	7.643	11.464			
22½	1.526	1.908	3.815	5.723	7.631	11.446			
25	1.524	1.904	3.809	5.713	7.619	11.428			
26¼	1.523	1.903	3.806	5.710	7.613	11.418			
27½	1.522	1.902	3.803	5.705	7.607	11.410			
30	1.519	1.898	3.797	5.695	7.594	11.392			
32½	1.517	1.896	3.791	5.687	7.582	11.374			
33¾	1.516	1.894	3.788	5.682	7.576	11.364			
35	1.514	1.892	3.785	5.677	7.570	11.354			
37½	1.512	1.890	3.779	5.669	7.558	11.336			
40	1.510	1.886	3.773	5.659	7.546	11.318			
41¼	1.508	1.885	3.770	5.654	7.540	11.310			
42½	1.507	1.883	3.769	5.650	7.534	11.300			
45	1.505	1.880	3.761	5.641	7.522	11.282			
47½	1.502	1.877	3.755	5.632	7.510	11.264			
48¾	1.501	1.876	3.751	5.628	7.504	11.255			
50	1.500	1.874	3.749	5.623	7.498	11.245			
52½	1.498	1.871	3.743	5.614	7.486	11.227			
55	1.494	1.868	3.737	5.605	7.472	11.209			
56¼	1.493	1.867	3.733	5.600	7.466	11.201			
57½	1.492	1.865	3.731	5.596	7.460	11.191			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
66 00	1.489	1.862	3.725	5.586	7.448	11.173			
02½	1.487	1.859	3.719	5.578	7.436	11.155	For latitude 66: 1¼	4.573	0.000
03¾	1.486	1.858	3.715	5.573	7.430	11.146	2½	9.146	.001
05	1.484	1.856	3.712	5.568	7.424	11.136	3¾	13.720	.002
07½	1.482	1.853	3.706	5.560	7.412	11.118	5	18.293	.005
							6¼	22.866	.007
10	1.480	1.850	3.700	5.550	7.400	11.100	7½	27.439	.011
11¼	1.478	1.848	3.697	5.545	7.394	11.090	10	36.584	.019
12½	1.477	1.847	3.694	5.540	7.387	11.082	12½	45.731	.031
15	1.475	1.844	3.688	5.532	7.375	11.063	15	54.877	.044
17½	1.472	1.841	3.682	5.522	7.363	11.045			
18¾	1.471	1.840	3.679	5.518	7.357	11.036			
20	1.470	1.838	3.676	5.514	7.351	11.027			
22½	1.468	1.835	3.670	5.504	7.339	11.009			
25	1.465	1.831	3.664	5.495	7.327	10.991			
26¼	1.464	1.830	3.660	5.490	7.321	10.981			
27½	1.463	1.829	3.658	5.486	7.315	10.972			
30	1.460	1.825	3.652	5.477	7.302	10.954			
32½	1.458	1.823	3.646	5.467	7.290	10.936			
33¾	1.457	1.822	3.642	5.464	7.284	10.926			
35	1.456	1.819	3.640	5.459	7.278	10.918			
37½	1.453	1.817	3.632	5.449	7.266	10.898			
40	1.451	1.813	3.626	5.441	7.254	10.880			
41¼	1.450	1.812	3.624	5.436	7.248	10.871			
42½	1.448	1.811	3.620	5.431	7.242	10.862			
45	1.446	1.807	3.614	5.422	7.229	10.843			
47½	1.444	1.805	3.608	5.413	7.217	10.825			
48¾	1.442	1.802	3.606	5.408	7.211	10.817			
50	1.441	1.801	3.602	5.404	7.205	10.807			
52½	1.439	1.798	3.596	5.394	7.193	10.789			
55	1.436	1.795	3.590	5.386	7.181	10.770			
56¼	1.435	1.794	3.587	5.381	7.174	10.762			
57½	1.434	1.792	3.584	5.376	7.168	10.752			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1: 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Merid- ional dis- tance	Ordi- nate of devel- oped parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
67 00	1. 432	1. 789	3. 578	5. 366	7. 156	10. 734	For lat-		
02½	1. 429	1. 786	3. 571	5. 358	7. 144	10. 715	itude 67: 1¼	4. 573	0. 000
03¾	1. 428	1. 784	3. 569	5. 353	7. 138	10. 706	2½	9. 148	. 001
05	1. 427	1. 783	3. 565	5. 348	7. 132	10. 697	3¾	13. 721	. 002
07½	1. 424	1. 780	3. 559	5. 339	7. 120	10. 679	5	18. 295	. 005
							6¼	22. 868	. 007
10	1. 421	1. 777	3. 553	5. 330	7. 106	10. 660	7½	27. 442	. 011
11¼	1. 420	1. 775	3. 551	5. 326	7. 100	10. 651	10	36. 589	. 019
12½	1. 418	1. 774	3. 547	5. 321	7. 094	10. 642	12½	45. 737	. 030
15	1. 416	1. 770	3. 541	5. 311	7. 082	10. 624	15	54. 884	. 043
17½	1. 414	1. 768	3. 535	5. 303	7. 070	10. 604			
18¾	1. 412	1. 766	3. 532	5. 298	7. 064	10. 596			
20	1. 411	1. 764	3. 529	5. 293	7. 057	10. 586			
22½	1. 409	1. 762	3. 523	5. 284	7. 045	10. 568			
25	1. 406	1. 758	3. 516	5. 275	7. 033	10. 549			
26¼	1. 405	1. 757	3. 514	5. 270	7. 027	10. 541			
27½	1. 404	1. 756	3. 510	5. 266	7. 021	10. 531			
30	1. 402	1. 752	3. 504	5. 256	7. 008	10. 513			
32½	1. 399	1. 750	3. 498	5. 248	6. 996	10. 494			
33¾	1. 398	1. 747	3. 496	5. 243	6. 990	10. 486			
35	1. 397	1. 746	3. 492	5. 238	6. 984	10. 476			
37½	1. 394	1. 742	3. 486	5. 228	6. 972	10. 458			
40	1. 392	1. 740	3. 480	5. 220	6. 959	10. 439			
41¼	1. 391	1. 739	3. 476	5. 215	6. 953	10. 429			
42½	1. 390	1. 736	3. 474	5. 210	6. 947	10. 421			
45	1. 387	1. 734	3. 467	5. 201	6. 935	10. 402			
47½	1. 385	1. 730	3. 461	5. 192	6. 923	10. 384			
48¾	1. 384	1. 729	3. 458	5. 188	6. 917	10. 374			
50	1. 382	1. 728	3. 455	5. 183	6. 910	10. 366			
52½	1. 380	1. 724	3. 449	5. 173	6. 898	10. 346			
55	1. 378	1. 721	3. 443	5. 164	6. 886	10. 328			
56¼	1. 376	1. 720	3. 439	5. 160	6. 880	10. 319			
57½	1. 375	1. 718	3. 437	5. 155	6. 874	10. 309			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
68 00	1. 372	1. 715	3. 431	5. 146	6. 860	10. 291
02½	1. 369	1. 712	3. 425	5. 136	6. 848	10. 273
03¾	1. 368	1. 710	3. 421	5. 131	6. 842	10. 264
05	1. 367	1. 709	3. 418	5. 128	6. 836	10. 254
07½	1. 364	1. 706	3. 412	5. 118	6. 823	10. 236
10	1. 362	1. 703	3. 406	5. 108	6. 811	10. 217
11¼	1. 361	1. 702	3. 403	5. 104	6. 805	10. 208
12½	1. 360	1. 699	3. 400	5. 099	6. 799	10. 199
15	1. 357	1. 697	3. 394	5. 090	6. 787	10. 180
17½	1. 355	1. 693	3. 388	5. 081	6. 774	10. 162
18¾	1. 354	1. 692	3. 384	5. 076	6. 768	10. 152
20	1. 352	1. 691	3. 380	5. 071	6. 762	10. 142
22½	1. 350	1. 687	3. 374	5. 062	6. 750	10. 124
25	1. 348	1. 685	3. 368	5. 053	6. 737	10. 106
26¼	1. 346	1. 682	3. 366	5. 048	6. 731	10. 097
27½	1. 345	1. 681	3. 362	5. 044	6. 725	10. 087
30	1. 343	1. 678	3. 356	5. 034	6. 713	10. 069
32½	1. 340	1. 675	3. 350	5. 026	6. 700	10. 050
33¾	1. 339	1. 674	3. 347	5. 021	6. 694	10. 040
35	1. 338	1. 672	3. 344	5. 016	6. 688	10. 032
37½	1. 336	1. 669	3. 337	5. 006	6. 676	10. 013
40	1. 332	1. 666	3. 331	4. 997	6. 662	9. 995
41¼	1. 331	1. 664	3. 329	4. 992	6. 656	9. 985
42½	1. 330	1. 663	3. 325	4. 988	6. 650	9. 976
45	1. 327	1. 660	3. 319	4. 979	6. 638	9. 958
47½	1. 325	1. 656	3. 313	4. 969	6. 625	9. 938
48¾	1. 324	1. 655	3. 310	4. 964	6. 619	9. 929
50	1. 322	1. 654	3. 307	4. 960	6. 613	9. 920
52½	1. 320	1. 650	3. 300	4. 951	6. 601	9. 901
55	1. 318	1. 648	3. 294	4. 942	6. 588	9. 883
56¼	1. 316	1. 645	3. 292	4. 937	6. 582	9. 874
57½	1. 315	1. 644	3. 288	4. 932	6. 576	9. 864

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 68: 1¼	4. 574	0. 000
2½	9. 149	. 001
3¾	13. 723	. 002
5	18. 298	. 005
6¼	22. 871	. 007
7½	27. 445	. 011
10	36. 594	. 018
12½	45. 743	. 029
15	54. 892	. 042

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1 : 20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
69 00	1. 313	1. 640	3. 282	4. 922	6. 564	9. 846	For lat-		
02½	1. 310	1. 638	3. 276	4. 914	6. 551	9. 827	itude 69: 1¼	4. 574	0. 000
03¾	1. 309	1. 637	3. 272	4. 909	6. 545	9. 817	2½	9. 150	. 001
05	1. 308	1. 634	3. 269	4. 901	6. 539	9. 808	3¾	13. 724	. 002
07½	1. 306	1. 632	3. 263	4. 895	6. 527	9. 790	5	18. 299	. 005
							6¼	22. 874	. 007
10	1. 303	1. 628	3. 257	4. 885	6. 514	9. 770	7½	27. 449	. 010
11¼	1. 302	1. 627	3. 254	4. 880	6. 508	9. 762	10	36. 599	. 018
12½	1. 301	1. 625	3. 251	4. 876	6. 502	9. 752	12½	45. 749	. 028
15	1. 298	1. 622	3. 245	4. 867	6. 490	9. 733	15	54. 898	. 040
17½	1. 295	1. 619	3. 239	4. 858	6. 476	9. 715			
18¾	1. 294	1. 618	3. 235	4. 853	6. 470	9. 706			
20	1. 292	1. 616	3. 232	4. 848	6. 464	9. 696			
22½	1. 290	1. 613	3. 226	4. 838	6. 451	9. 678			
25	1. 288	1. 610	3. 220	4. 830	6. 439	9. 659			
26¼	1. 286	1. 608	3. 216	4. 825	6. 433	9. 649			
27½	1. 285	1. 607	3. 214	4. 820	6. 427	9. 640			
30	1. 283	1. 603	3. 208	4. 811	6. 414	9. 622			
32½	1. 280	1. 601	3. 200	4. 801	6. 402	9. 602			
33¾	1. 279	1. 598	3. 198	4. 796	6. 396	9. 593			
35	1. 278	1. 597	3. 194	4. 792	6. 389	9. 584			
37½	1. 276	1. 595	3. 188	4. 783	6. 377	9. 565			
40	1. 273	1. 591	3. 182	4. 774	6. 365	9. 547			
41¼	1. 272	1. 590	3. 179	4. 769	6. 358	9. 538			
42½	1. 271	1. 588	3. 176	4. 764	6. 352	9. 528			
45	1. 268	1. 585	3. 169	4. 754	6. 340	9. 509			
47½	1. 265	1. 582	3. 163	4. 745	6. 326	9. 491			
48¾	1. 264	1. 580	3. 161	4. 740	6. 320	9. 481			
50	1. 262	1. 579	3. 157	4. 736	6. 314	9. 472			
52½	1. 260	1. 576	3. 151	4. 727	6. 302	9. 452			
55	1. 258	1. 572	3. 145	4. 717	6. 289	9. 434			
56¼	1. 256	1. 571	3. 142	4. 712	6. 283	9. 425			
57½	1. 255	1. 570	3. 138	4. 708	6. 277	9. 415			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
70 00	1.253	1.566	3.132	4.698	6.264	9.397
02½	1.250	1.562	3.126	4.688	6.252	9.378
03¾	1.249	1.561	3.122	4.685	6.246	9.368
05	1.248	1.560	3.120	4.680	6.240	9.359
07½	1.246	1.556	3.114	4.670	6.227	9.341
10	1.243	1.554	3.107	4.661	6.215	9.322
11¼	1.242	1.552	3.104	4.656	6.208	9.312
12½	1.241	1.550	3.101	4.651	6.202	9.302
15	1.238	1.547	3.095	4.642	6.190	9.284
17½	1.235	1.544	3.089	4.633	6.176	9.265
18¾	1.234	1.543	3.085	4.628	6.170	9.256
20	1.232	1.541	3.082	4.624	6.164	9.246
22½	1.230	1.538	3.076	4.614	6.151	9.228
25	1.228	1.535	3.070	4.604	6.139	9.209
26¼	1.226	1.534	3.066	4.600	6.133	9.199
27½	1.225	1.531	3.064	4.595	6.127	9.190
30	1.223	1.529	3.058	4.585	6.114	9.172
32½	1.220	1.525	3.050	4.576	6.102	9.152
33¾	1.219	1.524	3.048	4.572	6.095	9.143
35	1.218	1.523	3.044	4.567	6.089	9.133
37½	1.216	1.519	3.038	4.558	6.077	9.115
40	1.213	1.516	3.032	4.548	6.064	9.096
41¼	1.212	1.514	3.029	4.543	6.058	9.086
42½	1.211	1.513	3.025	4.538	6.052	9.077
45	1.207	1.510	3.019	4.529	6.038	9.059
47½	1.205	1.506	3.013	4.519	6.026	9.040
48¾	1.204	1.505	3.010	4.514	6.020	9.030
50	1.202	1.504	3.007	4.511	6.013	9.020
52½	1.200	1.500	3.000	4.501	6.001	9.001
55	1.198	1.498	2.994	4.492	5.988	8.983
56¼	1.196	1.495	2.992	4.487	5.982	8.974
57½	1.195	1.494	2.988	4.482	5.976	8.964

Ordinate of developed parallel and meridional distances		
Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
° ′	*Inches*	*Inch*
For latitude 70: 1¼	4.576	0.000
2½	9.151	.001
3¾	13.726	.002
5	18.301	.005
6¼	22.877	.007
7½	27.452	.010
10	36.602	.017
12½	45.754	.026
15	54.905	.038

ARMY AIR FORCES

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE I.—*Coordinates for the projection of maps, scale 1:20,000*—Continued

Latitude of parallel	Abscissas of developed parallel						Ordinate of developed parallel and meridional distances		
	Longitude interval						Latitude and longitude interval	Meridional distance	Ordinate of developed parallel
	1′	1¼′	2½′	3¾′	5′	7½′			
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	° ′	*Inches*	*Inch*
71 00	1. 193	1. 490	2. 982	4. 472	5. 963	8. 945	For lat-		
02½	1. 190	1. 488	2. 975	4. 463	5. 951	8. 926	itude 71: 1¼	4. 576	0. 000
03¾	1. 189	1. 486	2. 972	4. 458	5. 945	8. 917	2½	9. 151	. 001
05	1. 188	1. 484	2. 969	4. 453	5. 938	8. 908	3¾	13. 728	. 002
07½	1. 186	1. 481	2. 963	4. 444	5. 926	8. 888	5	18. 304	. 004
							6¼	22. 879	. 006
10	1. 182	1. 478	2. 957	4. 435	5. 912	8. 869	7½	27. 455	. 010
11¼	1. 181	1. 477	2. 953	4. 430	5. 906	8. 860	10	36. 607	. 017
12½	1. 180	1. 475	2. 950	4. 426	5. 900	8. 850	12½	45. 758	. 025
15	1. 177	1. 472	2. 944	4. 416	5. 887	8. 832	15	54. 911	. 037
17½	1. 175	1. 469	2. 938	4. 406	5. 875	8. 813			
18¾	1. 174	1. 468	2. 934	4. 402	5. 869	8. 803			
20	1. 172	1. 465	2. 932	4. 397	5. 862	8. 794			
22½	1. 170	1. 463	2. 924	4. 387	5. 850	8. 774			
25	1. 168	1. 459	2. 918	4. 378	5. 837	8. 756			
26¼	1. 166	1. 458	2. 916	4. 373	5. 831	8. 747			
27½	1. 165	1. 456	2. 912	4. 368	5. 825	8. 737			
30	1. 163	1. 453	2. 906	4. 360	5. 812	8. 718			
32½	1. 160	1. 450	2. 899	4. 350	5. 800	8. 699			
33¾	1. 159	1. 448	2. 897	4. 345	5. 794	8. 689			
35	1. 157	1. 447	2. 893	4. 340	5. 786	8. 681			
37½	1. 154	1. 444	2. 887	4. 331	5. 774	8. 662			
40	1. 152	1. 440	2. 881	4. 321	5. 761	8. 642			
41¼	1. 151	1. 439	2. 878	4. 316	5. 755	8. 633			
42½	1. 150	1. 438	2. 874	4. 312	5. 749	8. 623			
45	1. 147	1. 434	2. 868	4. 302	5. 736	8. 604			
47½	1. 145	1. 430	2. 862	4. 292	5. 724	8. 586			
48¾	1. 144	1. 429	2. 858	4. 288	5. 717	8. 576			
50	1. 142	1. 428	2. 856	4. 283	5. 711	8. 567			
52½	1. 140	1. 424	2. 849	4. 273	5. 699	8. 548			
55	1. 138	1 422	2. 843	4. 265	5. 686	8. 528			
56¼	1. 136	1. 420	2. 839	4. 260	5. 680	8. 519			
57½	1. 135	1. 418	2. 837	4. 255	5. 674	8. 509			

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*

Lati- ude of arallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
00	3. 043	3. 804	7. 609	11. 413	15. 217	22. 826
02½	. 043	. 804	. 609	. 413	. 217	. 826
03¾	. 043	. 804	. 609	. 413	. 217	. 826
05	. 043	. 804	. 609	. 413	. 217	. 826
07½	. 043	. 804	. 609	. 413	. 217	. 826
10	3. 043	3. 804	7. 609	11. 413	15. 217	22. 826
11¼	. 043	. 804	. 609	. 413	. 217	. 826
12½	. 043	. 804	. 609	. 413	. 217	. 826
15	. 043	. 804	. 609	. 413	. 217	. 826
17½	. 043	. 804	. 609	. 413	. 217	. 826
18¾	. 043	. 804	. 609	. 413	. 217	. 826
20	3. 043	3. 804	7. 609	11. 413	15. 217	22. 826
22½	. 043	. 804	. 609	. 413	. 217	. 826
25	. 043	. 804	. 609	. 413	. 217	. 826
26¼	. 043	. 804	. 609	. 413	. 217	. 826
27½	. 043	. 804	. 609	. 413	. 217	. 826
30	3. 043	3. 804	7. 609	11. 413	15. 217	22. 826
32½	. 043	. 804	. 608	. 413	. 217	. 825
33¾	. 043	. 804	. 608	. 413	. 217	. 825
35	. 043	. 804	. 608	. 413	. 217	. 825
37½	. 043	. 804	. 608	. 413	. 217	. 825
40	3. 043	3. 804	7. 608	11. 412	15. 217	22. 825
41¼	. 043	. 804	. 608	. 412	. 216	. 825
42½	. 043	. 804	. 608	. 412	. 216	. 825
45	. 043	. 804	. 608	. 412	. 216	. 824
47½	. 043	. 804	. 608	. 412	. 216	. 824
48¾	. 043	. 804	. 608	. 412	. 216	. 824
50	3. 043	3. 804	7. 608	11. 412	15. 216	22. 824
52½	. 043	. 804	. 608	. 412	. 216	. 824
55	. 043	. 804	. 608	. 412	. 216	. 823
56¼	. 043	. 804	. 608	. 412	. 215	. 823
57½	. 043	. 804	. 608	. 412	. 215	. 823
00	3. 043	3. 804	7. 608	11. 411	15. 215	22. 823
02½	. 043	. 804	. 608	. 411	. 215	. 823
03¾	. 043	. 804	. 607	. 411	. 215	. 822
05	. 043	. 804	. 607	. 411	. 215	. 822
07½	. 043	. 804	. 607	. 411	. 215	. 822
10	3. 043	3. 804	7. 607	11. 411	15. 214	22. 822
11¼	. 043	. 804	. 607	. 411	. 214	. 821
12½	. 043	. 804	. 607	. 411	. 214	. 821
15	. 043	. 803	. 607	. 410	. 214	. 821
17½	. 043	. 803	. 607	. 410	. 214	. 820
18¾	. 043	. 803	. 607	. 410	. 214	. 820
20	3. 043	3. 803	7. 607	11. 410	15. 213	22. 820
22½	. 043	. 803	. 607	. 410	. 213	. 820
25	. 043	. 803	. 606	. 410	. 213	. 819
26¼	. 043	. 803	. 606	. 410	. 213	. 819
27½	. 043	. 803	. 606	. 409	. 213	. 819
30	3. 042	3. 803	7. 606	11. 409	15. 212	22. 819
32½	. 042	. 803	. 606	. 409	. 212	. 818
33¾	. 042	. 803	. 606	. 409	. 212	. 818
35	. 042	. 803	. 606	. 409	. 212	. 818
37½	. 042	. 803	. 606	. 409	. 211	. 817
40	3. 042	3. 803	7. 606	11. 408	15. 211	22. 817
41¼	. 042	. 803	. 605	. 408	. 211	. 816
42½	. 042	. 803	. 605	. 408	. 211	. 816
45	. 042	. 803	. 605	. 408	. 210	. 816
47½	. 042	. 803	. 605	. 408	. 210	. 815
48¾	. 042	. 802	. 605	. 407	. 210	. 815
50	3. 042	3. 802	7. 605	11. 407	15. 210	22. 815
52½	. 042	. 802	. 605	. 407	. 209	. 814
55	. 042	. 802	. 605	. 407	. 209	. 814
56¼	. 042	. 802	. 604	. 407	. 209	. 813
57½	. 042	. 802	. 604	. 407	. 209	. 813
00	3. 042	3. 802	7. 604	11. 406	15. 208	22. 812

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 0°	1¼	3. 779	0. 000
	2½	7. 557	. 000
	3¾	11. 336	. 000
	5	15. 114	. 000
	6¼	18. 893	. 000
	7½	22. 672	. 000
	10	30. 229	. 000
	12½	37. 786	. 000
	15	45. 344	. 000
For latitude 1°	1¼	3. 779	0. 000
	2½	7. 557	. 000
	3¾	11. 336	. 000
	5	15. 115	. 000
	6¼	18. 893	. 000
	7½	22. 672	. 000
	10	30. 229	. 001
	12½	37. 787	. 001
	15	45. 344	. 002
For latitude 2°	1¼	3. 779	0. 000
	2½	7. 557	. 000
	3¾	11. 336	. 000
	5	15. 115	. 000
	6¼	18. 893	. 001
	7½	22. 672	. 001
	10	30. 229	. 001
	12½	37. 787	. 002
	15	45. 344	. 003

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
2 00	3.042	3.802	7.604	11.406	15.208	22.812
02½	.042	.802	.604	.406	.208	.812
03¾	.042	.802	.604	.406	.208	.812
05	.041	.802	.604	.406	.207	.811
07½	.041	.802	.604	.405	.207	.811
10	3.041	3.802	7.603	11.405	15.207	22.810
11¼	.041	.802	.603	.405	.206	.810
12½	.041	.802	.603	.405	.206	.809
15	.041	.801	.603	.404	.206	.809
17½	.041	.801	.603	.404	.205	.808
18¾	.041	.801	.603	.404	.205	.808
20	3.041	3.801	7.602	11.404	15.205	22.808
22½	.041	.801	.602	.403	.205	.807
25	.041	.801	.602	.403	.204	.806
26¼	.041	.801	.602	.403	.204	.806
27½	.041	.801	.602	.403	.204	.805
30	3.041	3.801	7.602	11.402	15.203	22.805
32½	.041	.801	.601	.402	.203	.804
33¾	.041	.801	.601	.402	.202	.804
35	.040	.801	.601	.402	.202	.803
37½	.040	.800	.601	.401	.202	.802
40	3.040	3.800	7.601	11.401	15.201	22.802
41¼	.040	.800	.600	.401	.201	.801
42½	.040	.800	.600	.400	.201	.801
45	.040	.800	.600	.400	.200	.800
47½	.040	.800	.600	.400	.200	.799
48¾	.040	.800	.600	.400	.199	.799
50	3.040	3.800	7.600	11.399	15.199	22.799
52½	.040	.800	.599	.399	.198	.798
55	.039	.799	.599	.398	.198	.797
56¼	.039	.799	.599	.398	.198	.796
57½	.039	.799	.599	.398	.197	.796
3 00	3.039	3.799	7.598	11.398	15.197	22.795
02½	.039	.799	.598	.397	.196	.794
03¾	.039	.799	.598	.397	.196	.794
05	.039	.799	.598	.397	.196	.794
07½	.039	.799	.598	.396	.195	.793
10	3.039	3.799	7.597	11.396	15.195	22.792
11¼	.039	.799	.597	.396	.194	.791
12½	.039	.798	.597	.395	.194	.791
15	.039	.798	.597	.395	.193	.790
17½	.039	.798	.596	.394	.193	.789
18¾	.038	.798	.596	.394	.192	.788
20	3.038	3.798	7.596	11.394	15.192	22.788
22½	.038	.798	.596	.393	.191	.787
25	.038	.798	.595	.393	.191	.786
26¼	.038	.798	.595	.393	.190	.786
27½	.038	.798	.595	.393	.190	.785
30	3.038	3.797	7.595	11.392	15.189	22.784
32½	.038	.797	.594	.391	.189	.783
33¾	.038	.797	.594	.391	.188	.782
35	.038	.797	.594	.391	.188	.782
37½	.037	.797	.594	.390	.187	.781
40	3.037	3.797	7.593	11.390	15.187	22.780
41¼	.037	.797	.593	.390	.186	.779
42½	.037	.796	.593	.389	.186	.779
45	.037	.796	.593	.389	.185	.778
47½	.037	.796	.592	.388	.184	.777
48¾	.037	.796	.592	.388	.184	.776
50	3.037	3.796	7.592	11.388	15.184	22.776
52½	.037	.796	.591	.387	.183	.774
55	.036	.796	.591	.387	.182	.773
56¼	.036	.795	.591	.386	.182	.773
57½	.036	.795	.591	.386	.181	.772
4 00	3.036	3.795	7.590	11.386	15.181	22.771

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of develope paralle
	′	*Inches*	*Inch*
For latitude 2°	1¼	3.779	0.00
	2½	7.557	.00
	3¾	11.336	.00
	5	15.115	.00
	6¼	18.893	.00
	7½	22.672	.00
	10	30.229	.00
	12½	37.787	.00
	15	45.344	.00
For latitude 3°	1¼	3.779	0.00
	2½	7.557	.00
	3¾	11.336	.00
	5	15.115	.00
	6¼	18.894	.00
	7½	22.673	.00
	10	30.230	.00
	12½	37.788	.00
	15	45.345	.00
For latitude 4°	1¼	3.779	0.00
	2½	7.558	.00
	3¾	11.337	.00
	5	15.115	.00
	6¼	18.894	.00
	7½	22.673	.00
	10	30.231	.00
	12½	37.788	.00
	15	45.346	.00

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
4 00	3.036	3.795	7.590	11.386	15.181	22.771
02½	.036	.795	.590	.385	.180	.770
03¾	.036	.795	.590	.385	.180	.769
05	.036	.795	.590	.385	.179	.769
07½	.036	.795	.589	.384	.178	.768
10	3.036	3.794	7.589	11.383	15.178	22.766
11¼	.035	.794	.589	.383	.177	.766
12½	.035	.794	.588	.383	.177	.765
15	.035	.794	.588	.382	.176	.764
17½	.035	.794	.588	.381	.175	.763
18¾	.035	.794	.587	.381	.175	.762
20	3.035	3.794	7.587	11.381	15.174	22.762
22½	.035	.793	.587	.380	.174	.760
25	.035	.793	.586	.380	.173	.759
26¼	.034	.793	.586	.379	.172	.758
27½	.034	.793	.586	.379	.172	.758
30	3.034	3.793	7.585	11.378	15.171	22.756
32½	.034	.793	.585	.378	.170	.755
33¾	.034	.792	.585	.377	.170	.755
35	.034	.792	.585	.377	.169	.754
37½	.034	.792	.584	.376	.168	.753
40	3.033	3.792	7.584	11.376	15.167	22.751
41¼	.033	.792	.584	.375	.167	.751
42½	.033	.792	.583	.375	.167	.750
45	.033	.791	.583	.374	.166	.748
47½	.033	.791	.582	.374	.165	.747
48¾	.033	.791	.582	.373	.164	.746
50	3.033	3.791	7.582	11.373	15.164	22.746
52½	.033	.791	.581	.372	.163	.744
55	.032	.790	.581	.371	.162	.743
56¼	.032	.790	.581	.371	.161	.742
57½	.032	.790	.580	.371	.161	.741
5 00	3.032	3.790	7.580	11.370	15.160	22.740
02½	.032	.790	.580	.369	.159	.739
03¾	.032	.790	.579	.369	.159	.738
05	.032	.790	.579	.369	.158	.737
07½	.031	.789	.579	.368	.157	.736
10	3.031	3.789	7.578	11.367	15.157	22.734
11¼	.031	.789	.578	.367	.156	.733
12½	.031	.789	.578	.366	.155	.733
15	.031	.789	.577	.366	.154	.731
17½	.031	.788	.577	.365	.153	.730
18¼	.031	.788	.576	.364	.153	.729
20	3.030	3.788	7.576	11.364	15.152	22.728
22½	.030	.788	.575	.363	.151	.726
25	.030	.787	.575	.362	.150	.725
26¼	.030	.787	.575	.362	.149	.724
27½	.030	.787	.574	.362	.149	.723
30	3.030	3.787	7.574	11.361	15.148	22.722
32½	.029	.787	.573	.360	.147	.720
33¾	.029	.787	.573	.360	.146	.720
35	.029	.786	.573	.359	.146	.719
37½	.029	.786	.572	.359	.145	.717
40	3.029	3.786	7.572	11.358	15.144	22.716
41¼	.029	.786	.572	.357	.143	.715
42½	.029	.786	.571	.357	.143	.714
45	.028	.785	.571	.356	.141	.712
47½	.028	.785	.570	.355	.140	.710
48¾	.028	.785	.570	.355	.140	.710
50	3.028	3.785	7.570	11.354	15.139	22.709
52½	.028	.785	.569	.354	.138	.707
55	.027	.784	.568	.353	.137	.705
56¼	.027	.784	.568	.352	.136	.705
57½	.027	.784	.568	.352	.136	.704
00	3.027	3.784	7.567	11.351	15.135	22.702

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 4°	1¼	3.779	0.000
	2½	7.558	.000
	3¾	11.337	.000
	5	15.115	.001
	6¼	18.894	.001
	7½	22.673	.002
	10	30.231	.003
	12½	37.788	.005
	15	45.346	.007
For latitude 5°	1¼	3.779	0.000
	2½	7.558	.000
	3¾	11.337	.001
	5	15.116	.001
	6¼	18.894	.001
	7½	22.674	.002
	10	30.231	.004
	12½	37.789	.006
	15	45.347	.009
For latitude 6°	1¼	3.779	0.000
	2½	7.558	.000
	3¾	11.337	.001
	5	15.116	.001
	6¼	18.895	.002
	7½	22.674	.003
	10	30.233	.005
	12½	37.791	.007
	15	45.349	.010

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
6	00	3.027	3.784	7.567	11.351	15.135	22.702
	02½	.027	.783	.567	.350	.134	.700
	03¾	.027	.783	.566	.350	.133	.699
	05	.027	.783	.566	.349	.132	.699
	07½	.026	.783	.566	.348	.131	.697
	10	3.026	3.783	7.565	11.348	15.130	22.695
	11¼	.026	.782	.565	.347	.129	.694
	12½	.026	.782	.564	.347	.129	.693
	15	.026	.782	.564	.346	.128	.691
	17½	.025	.782	.563	.345	.126	.690
	18¾	.025	.781	.563	.344	.126	.689
	20	3.025	3.781	7.563	11.344	15.125	22.688
	22½	.025	.781	.562	.343	.124	.686
	25	.025	.781	.561	.342	.123	.684
	26¼	.024	.781	.561	.342	.122	.683
	27½	.024	.780	.561	.341	.122	.682
	30	3.024	3.780	7.560	11.340	15.120	22.681
	32½	.024	.780	.560	.339	.119	.679
	33¾	.024	.780	.559	.339	.118	.678
	35	.024	.779	.559	.338	.118	.677
	37½	.023	.779	.558	.337	.117	.675
	40	3.023	3.779	7.558	11.336	15.115	22.673
	41¼	.023	.779	.557	.336	.115	.672
	42½	.023	.778	.557	.335	.114	.671
	45	.023	.778	.556	.335	.113	.669
	47½	.022	.778	.556	.334	.111	.667
	48¾	.022	.778	.555	.333	.111	.666
	50	3.022	3.778	7.555	11.333	15.110	22.665
	52½	.022	.777	.554	.332	.109	.663
	55	.021	.777	.554	.331	.107	.661
	56¼	.021	.777	.553	.330	.107	.660
	57½	.021	.777	.553	.330	.106	.659
7	00	3.021	3.776	7.552	11.329	15.105	22.657
	02½	.021	.776	.552	.328	.103	.655
	03¾	.021	.776	.551	.327	.103	.654
	05	.020	.776	.551	.327	.102	.653
	07½	.020	.775	.550	.326	.101	.651
	10	3.020	3.775	7.550	11.325	15.099	22.649
	11¼	.020	.775	.549	.324	.099	.648
	12½	.020	.774	.549	.323	.098	.647
	15	.019	.774	.548	.322	.097	.645
	17½	.019	.774	.548	.321	.095	.643
	18¾	.019	.774	.547	.321	.095	.642
	20	3.019	3.773	7.547	11.320	15.094	22.641
	22½	.019	.773	.546	.319	.093	.640
	25	.018	.773	.546	.318	.091	.637
	26¼	.018	.773	.545	.318	.090	.635
	27½	.018	.772	.545	.317	.090	.634
	30	3.018	3.772	7.544	11.316	15.088	22.632
	32½	.017	.772	.543	.315	.087	.630
	33¾	.017	.771	.543	.315	.086	.629
	35	.017	.771	.543	.314	.085	.628
	37½	.017	.771	.542	.313	.084	.626
	40	3.017	3.771	7.541	11.312	15.082	22.624
	41¼	.016	.770	.541	.311	.082	.623
	42½	.016	.770	.540	.311	.081	.621
	45	.016	.770	.540	.310	.079	.619
	47½	.016	.769	.539	.308	.078	.617
	48¾	.015	.769	.539	.308	.077	.616
	50	3.015	3.769	7.538	11.307	.076	22.615
	52½	.015	.769	.537	.306	.075	.612
	55	.015	.768	.537	.305	.073	.610
	56¼	.015	.768	.536	.305	.073	.609
	57½	.014	.768	.536	.304	.072	.608
8	00	3.014	3.768	7.535	11.303	15.070	22.606

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 6°	1¼	3.779	0.000
	2½	7.558	.000
	3¾	11.337	.001
	5	15.116	.001
	6¼	18.895	.002
	7½	22.674	.003
	10	30.233	.005
	12½	37.791	.007
	15	45.349	.010
For latitude 7°	1¼	3.779	0.000
	2½	7.558	.000
	3¾	11.338	.001
	5	15.117	.001
	6¼	18.896	.002
	7½	22.675	.003
	10	30.234	.005
	12½	37.792	.008
	15	45.351	.012
For latitude 8°	1¼	3.779	0.000
	2½	7.559	.000
	3¾	11.338	.001
	5	15.118	.001
	6¼	18.897	.002
	7½	22.676	.003
	10	30.235	.006
	12½	37.794	.010
	15	45.353	.014

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
8 00	3.014	3.768	7.535	11.303	15.070	22.606
02½	.014	.767	.534	.302	.069	.603
03¾	.014	.767	.534	.301	.068	.602
05	.013	.767	.534	.300	.067	.601
07½	.013	.766	.533	.299	.066	.599
10	3.013	3.766	7.532	11.298	15.064	22.596
11¼	.013	.766	.532	.298	.063	.595
12½	.013	.766	.531	.297	.063	.594
15	.012	.765	.531	.296	.061	.592
17½	.012	.765	.530	.295	.059	.589
18¾	.012	.765	.529	.294	.059	.588
20	3.012	3.764	7.529	11.293	15.058	22.587
22½	.011	.764	.528	.292	.056	.585
25	.011	.764	.527	.291	.055	.582
26¼	.011	.764	.527	.290	.054	.581
27½	.011	.763	.527	.290	.053	.580
30	3.010	3.763	7.526	11.289	15.051	22.577
32½	.010	.762	.525	.287	.050	.575
33¾	.010	.762	.525	.287	.049	.574
35	.010	.762	.524	.286	.048	.572
37½	.009	.762	.523	.285	.047	.570
40	3.009	3.761	7.522	11.284	15.045	22.567
41¼	.009	.761	.522	.283	.044	.566
42½	.009	.761	.522	.282	.043	.565
45	.008	.760	.521	.281	.042	.562
47½	.008	.760	.520	.280	.040	.560
48¾	.008	.760	.520	.279	.039	.559
50	3.008	3.760	7.519	11.279	15.038	22.557
52½	.007	.759	.518	.277	.036	.555
55	.007	.759	.517	.276	.035	.552
56¼	.007	.758	.517	.275	.034	.551
57½	.007	.758	.517	.275	.033	.550
00	3.006	3.758	7.516	11.274	15.031	22.547
02½	.006	.757	.515	.272	.030	.545
03¾	.006	.757	.514	.272	.029	.543
05	.006	.757	.514	.271	.028	.542
07½	.005	.757	.513	.270	.026	.539
10	3.005	3.756	7.512	11.268	15.024	22.537
11¼	.005	.756	.512	.268	.024	.535
12½	.005	.756	.511	.267	.023	.534
15	.004	.755	.510	.266	.021	.531
17½	.004	.755	.510	.264	.019	.529
18¾	.004	.755	.509	.264	.018	.527
20	3.003	3.754	7.509	11.263	15.017	22.526
22½	.003	.754	.508	.262	.016	.523
25	.003	.753	.507	.260	.014	.521
26¼	.003	.753	.506	.260	.013	.519
27½	.002	.753	.506	.259	.012	.518
30	3.002	3.753	7.505	11.258	15.010	22.515
32½	.002	.752	.504	.256	.008	.513
33¾	.001	.752	.504	.256	.007	.511
35	.001	.752	.503	.255	.007	.510
37½	.001	.751	.502	.254	.005	.507
40	3.001	3.751	7.501	11.252	15.003	22.504
41¼	.000	.750	.501	.251	.002	.503
42½	.000	.750	.501	.251	.001	.502
45	.000	.750	.500	.249	14.999	.499
47½	2.999	.749	.499	.248	.997	.496
48¾	.999	.749	.498	.247	.996	.494
50	2.999	3.749	7.498	11.247	14.995	22.493
52½	.999	.748	.497	.245	.993	.490
55	.998	.748	.496	.244	.992	.487
56¼	.998	.748	.495	.243	.991	.486
57½	.998	.748	.495	.242	.990	.485
00	2.998	3.747	7.494	11.241	14.988	22.482

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 8°	1¼	3.779	0.000
	2½	7.559	.000
	3¾	11.338	.001
	5	15.118	.001
	6¼	18.897	.002
	7½	22.676	.003
	10	30.235	.006
	12½	37.794	.010
	15	45.353	.014
For latitude 9°	1¼	3.780	0.000
	2½	7.559	.000
	3¾	11.339	.001
	5	15.118	.002
	6¼	18.898	.003
	7½	22.678	.004
	10	30.237	.007
	12½	37.796	.011
	15	45.356	.015
For latitude 10°	1¼	3.780	0.000
	2½	7.560	.000
	3¾	11.339	.001
	5	15.119	.002
	6¼	18.899	.003
	7½	22.679	.004
	10	30.238	.008
	12½	37.798	.012
	15	45.358	.017

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
10 00	2.998	3.747	7.494	11.241	14.988	22.482
02½	.997	.747	.493	.239	.986	.479
03¾	.997	.746	.493	.239	.985	.478
05	.997	.746	.492	.238	.984	.476
07½	.996	.746	.491	.237	.982	.473
10	2.996	3.745	7.490	11.235	14.980	22.470
11¼	.996	.475	.490	.234	.979	.469
12½	.996	.745	.489	.234	.978	.467
15	.995	.744	.488	.232	.976	.464
17½	.995	.744	.487	.231	.974	.461
18¾	.995	.743	.487	.230	.973	.460
20	2.995	3.743	7.486	11.229	14.972	22.459
22½	.994	.743	.485	.228	.970	.456
25	.994	.742	.484	.226	.968	.452
26¼	.994	.742	.484	.226	.967	.451
27½	.993	.742	.483	.225	.966	.450
30	2.993	3.741	7.482	11.223	14.964	22.447
32½	.993	.741	.481	.222	.962	.444
33¾	.992	.740	.481	.221	.961	.442
35	.992	.740	.480	.220	.960	.440
37½	.992	.740	.479	.219	.958	.437
40	2.991	3.739	7.478	11.217	14.956	22.435
41¼	.991	.739	.478	.216	.955	.433
42½	.991	.739	.477	.216	.954	.431
45	.990	.738	.476	.214	.952	.428
47½	.990	.738	.475	.213	.950	.425
48¾	.990	.737	.475	.212	.949	.424
50	2.990	3.737	7.474	11.211	14.948	22.422
52½	.989	.737	.473	.210	.946	.419
55	.989	.736	.472	.208	.944	.416
56¼	.989	.736	.471	.207	.943	.414
57½	.988	.735	.471	.206	.942	.413
11 00	2.988	3.735	7.470	11.205	14.940	22.410
02½	.988	.734	.469	.203	.938	.406
03¾	.987	.734	.468	.202	.937	.405
05	.987	.734	.468	.202	.936	.403
07½	.987	.733	.467	.200	.933	.400
10	2.986	3.733	7.466	11.199	14.931	22.397
11¼	.986	.733	.465	.198	.930	.395
12½	.986	.732	.465	.197	.929	.394
15	.985	.732	.463	.195	.927	.390
17½	.985	.731	.462	.194	.925	.387
18¾	.985	.731	.402	.193	.924	.386
20	2.985	3.731	7.461	11.192	14.923	22.384
22½	.984	.730	.460	.190	.921	.381
25	.984	.730	.459	.189	.918	.378
26¼	.983	.729	.459	.188	.917	.376
27½	.983	.729	.458	.187	.916	.374
30	2.983	3.728	7.457	11.186	14.914	22.371
32½	.982	.728	.456	.184	.912	.368
33¾	.982	.728	.455	.183	.911	.366
35	.982	.727	.455	.182	.910	.364
37½	.982	.727	.454	.181	.907	.361
40	2.981	3.726	7.453	11.179	14.905	22.358
41¼	.981	.726	.452	.178	.904	.356
42½	.981	.726	.451	.177	.903	.354
45	.980	.725	.450	.176	.901	.351
47½	.980	.725	.449	.174	.899	.348
48¾	.979	.724	.449	.173	.897	.346
50	2.979	3.724	7.448	11.172	14.896	22.344
52½	.979	.724	.447	.171	.894	.341
55	.978	.723	.446	.169	.892	.338
56¼	.978	.723	.445	.168	.891	.336
57½	.978	.722	.445	.167	.889	.334
12 00	2.977	3.722	7.444	11.165	14.887	22.331

Ordinate of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordi-nate of de-velope paralle
	′	*Inches*	*Inch*
For latitude 10°	1¼	3.780	0.00
	2½	7.560	.00
	3¾	11.339	.00
	5	15.119	.00
	6¼	18.899	.00
	7½	22.679	.00
	10	30.238	.00
	12½	37.798	.01
	15	45.358	.01
For latitude 11°	1¼	3.780	0.00
	2½	7.560	.00
	3¾	11.340	.00
	5	15.120	.00
	6¼	18.900	.00
	7½	22.680	.00
	10	30.240	.00
	12½	37.801	.01
	15	45.361	.01
For latitude 12°	1¼	3.780	0.00
	2½	7.561	.00
	3¾	11.341	.00
	5	15.121	.00
	6¼	18.902	.00
	7½	22.682	.00
	10	30.243	.00
	12½	37.804	.01
	15	45.364	.02

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
12 00	2.977	3.722	7.444	11.165	14.887	22.331
02½	.977	.721	.442	.164	.885	.327
03¾	.977	.721	.442	.163	.884	.326
05	.977	.721	.441	.162	.883	.324
07½	.976	.720	.440	.160	.880	.320
10	2.976	3.719	7.439	11.158	14.878	22.317
11¼	.975	.719	.438	.158	.877	.315
12½	.975	.719	.438	.157	.876	.313
15	.975	.718	.437	.155	.873	.310
17½	.974	.718	.435	.153	.871	.306
18¾	.974	.717	.435	.152	.870	.305
20	2.974	3.717	7.434	11.151	14.869	22.303
22½	.973	.717	.433	.150	.866	.299
25	.973	.716	.432	.148	.864	.296
26¼	.973	.716	.431	.147	.863	.294
27½	.972	.715	.431	.146	.862	.292
30	2.972	3.715	7.430	11.144	14.859	22.289
32½	.971	.714	.428	.143	.857	.285
33¾	.971	.714	.428	.142	.856	.283
35	.971	.714	.427	.141	.854	.281
37½	.970	.713	.426	.139	.852	.278
40	2.970	3.712	7.425	11.137	14.850	22.274
41¼	.970	.712	.424	.136	.848	.273
42½	.969	.712	.424	.135	.847	.271
45	.969	.711	.422	.134	.845	.267
47½	.968	.711	.421	.132	.842	.264
48¾	.968	.710	.421	.131	.841	.262
50	2.968	3.710	7.420	11.130	14.840	22.260
52½	.967	.709	.419	.128	.837	.256
55	.967	.709	.417	.126	.835	.252
56¼	.967	.708	.417	.125	.834	.251
57½	.966	.708	.416	.124	.832	.249
00	2.966	3.708	7.415	11.123	14.830	22.245
02½	.966	.707	.414	.121	.828	.241
03¾	.965	.707	.413	.120	.826	.240
05	.965	.706	.413	.119	.825	.238
07½	.965	.706	.411	.117	.823	.234
10	2.964	3.705	7.410	11.115	14.820	22.230
11¼	.964	.705	.409	.114	.819	.228
12½	.964	.704	.409	.113	.818	.226
15	.963	.704	.408	.111	.815	.223
17½	.963	.703	.406	.109	.813	.219
18¾	.962	.703	.406	.108	.811	.217
20	2.962	3.703	7.405	11.107	14.810	22.215
22½	.961	.702	.404	.106	.807	.211
25	.961	.701	.402	.104	.805	.207
26¼	.961	.701	.402	.103	.804	.205
27½	.960	.701	.401	.102	.802	.204
30	2.960	3.700	7.400	11.100	14.800	22.200
32½	.959	.699	.398	.098	.797	.196
33¾	.959	.699	.398	.097	.796	.194
35	.959	.699	.397	.096	.795	.192
37½	.958	.698	.396	.094	.792	.188
40	2.958	3.697	7.395	11.092	14.790	22.184
41¼	.958	.697	.394	.091	.788	.182
42½	.957	.697	.393	.090	.787	.180
45	.957	.696	.392	.088	.784	.176
47½	.956	.695	.391	.086	.782	.172
48¾	.956	.695	.390	.085	.780	.170
50	2.956	3.695	7.390	11.084	14.779	22.169
52½	.955	.694	.388	.082	.776	.165
55	.955	.693	.387	.080	.774	.161
56¼	.954	.693	.386	.079	.772	.159
57½	.954	.693	.386	.078	.771	.157
00	2.954	3.692	7.384	11.076	14.769	22.153

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 12°	1¼	3.780	0.000
	2½	7.561	.001
	3¾	11.341	.001
	5	15.121	.002
	6¼	18.902	.004
	7½	22.682	.005
	10	30.243	.009
	12½	37.804	.014
	15	45.364	.020
For latitude 13°	1¼	3.781	0.000
	2½	7.561	.001
	3¾	11.342	.001
	5	15.122	.002
	6¼	18.903	.004
	7½	22.684	.005
	10	30.245	.010
	12½	37.806	.015
	15	45.367	.022
For latitude 14°	1¼	3.781	0.000
	2½	7.562	.001
	3¾	11.343	.002
	5	15.124	.003
	6¼	18.905	.004
	7½	22.686	.006
	10	30.247	.010
	12½	37.809	.016
	15	45.371	.023

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
14 00	2.954	3.692	7.384	11.076	14.769	22.153
02½	.953	.691	.383	.074	.766	.149
03¾	.953	.691	.382	.073	.764	.147
05	.953	.691	.381	.072	.763	.145
07½	.952	.690	.380	.070	.760	.141
10	2.952	3.689	7.379	11.068	14.758	22.137
11¼	.951	.689	.378	.067	.756	.135
12½	.951	.689	.378	.066	.755	.132
15	.950	.688	.376	.064	.752	.128
17½	.950	.687	.375	.062	.750	.124
18¾	.950	.687	.374	.061	.748	.122
20	2.949	3.687	7.373	11.060	14.747	22.120
22½	.949	.686	.372	.058	.744	.116
25	.948	.685	.371	.056	.741	.112
26¼	.948	.685	.370	.055	.740	.110
27½	.948	.685	.369	.054	.739	.108
30	2.947	3.684	7.368	11.052	14.736	22.104
32½	.947	.683	.367	.050	.733	.100
33¾	.946	.683	.366	.049	.732	.098
35	.946	.683	.365	.048	.730	.096
37½	.946	.682	.364	.046	.728	.091
40	2.945	3.681	7.362	11.044	14.725	22.087
41¼	.944	.681	.362	.043	.723	.085
42½	.944	.681	.361	.042	.722	.083
45	.944	.680	.360	.039	.719	.079
47½	.943	.679	.358	.037	.717	.075
48¾	.943	.679	.358	.036	.715	.073
50	2.943	3.678	7.357	11.035	14.714	22.071
52½	.942	.678	.355	.033	.711	.066
55	.942	.677	.354	.031	.708	.062
56¼	.941	.677	.353	.030	.707	.060
57½	.941	.676	.353	.029	.705	.058
15 00	2.940	3.676	7.351	11.027	14.702	22.054
02½	.940	.675	.350	.025	.700	.049
03¾	.940	.675	.349	.024	.698	.047
05	.939	.674	.348	.023	.697	.045
07½	.939	.673	.347	.020	.694	.041
10	2.938	3.673	7.345	11.018	14.691	22.036
11¼	.938	.672	.345	.017	.689	.034
12½	.938	.672	.344	.016	.688	.032
15	.937	.671	.343	.014	.685	.028
17½	.936	.671	.341	.012	.682	.023
18¾	.936	.670	.340	.011	.681	.021
20	2.936	3.670	7.340	11.009	14.679	22.019
22½	.935	.669	.338	.007	.676	.014
25	.935	.668	.337	.005	.673	.010
26¼	.934	.668	.336	.004	.672	.008
27½	.934	.668	.335	.003	.670	.006
30	2.934	3.667	7.334	11.001	14.668	22.001
32½	.933	.666	.332	10.999	.665	21.997
33¾	.933	.666	.332	.997	.663	.995
35	.932	.665	.331	.996	.662	.993
37½	.932	.665	.329	.994	.659	.988
40	2.931	3.664	7.328	10.992	14.656	21.984
41¼	.931	.664	.327	.991	.654	.981
42½	.931	.663	.326	.990	.653	.979
45	.930	.662	.325	.987	.650	.975
47½	.929	.662	.323	.985	.647	.970
48¾	.929	.661	.322	.984	.645	.968
50	2.929	3.661	7.322	10.983	14.644	21.966
52½	.928	.660	.320	.981	.641	.961
55	.928	.659	.319	.978	.638	.957
56¼	.927	.659	.318	.977	.636	.954
57½	.927	.659	.317	.976	.635	.952
16 00	2.926	3.658	7.310	10.974	14.632	21.948

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 14°	1¼	3.781	0.00
	2½	7.562	.001
	3¾	11.343	.00
	5	15.124	.00
	6¼	18.905	.00
	7½	22.686	.00
	10	30.247	.01
	12½	37.809	.01
	15	45.371	.02
For latitude 15°	1¼	3.781	0.00
	2½	7.562	.001
	3¾	11.344	.00
	5	15.125	.00
	6¼	18.906	.00
	7½	22.687	.00
	10	30.250	.011
	12½	37.813	.01
	15	45.375	.02
For latitude 16°	1¼	3.781	0.00
	2½	7.563	.001
	3¾	11.345	.00
	5	15.126	.00
	6¼	18.908	.00
	7½	22.690	.007
	10	30.253	.01
	12½	37.816	.01
	15	45.379	.02

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
16 00	2.926	3.658	7.316	10.974	14.632	21.948
02½	.926	.657	.314	.972	.629	.943
03¾	.925	.657	.314	.970	.627	.941
05	.925	.656	.313	.969	.626	.938
07½	.925	.656	.311	.967	.623	.934
10	2.924	3.655	7.310	10.965	14.620	21.929
11¼	.924	.655	.309	.964	.618	.927
12½	.923	.654	.308	.962	.617	.925
15	.922	.653	.307	.960	.614	.920
17½	.922	.653	.305	.958	.610	.916
18¾	.921	.652	.304	.957	.609	.913
20	2.921	3.652	7.304	10.955	14.607	21.911
22½	.921	.651	.302	.953	.604	.907
25	.920	.650	.300	.951	.601	.901
26¼	.920	.650	.300	.950	.599	.899
27½	.920	.649	.299	.948	.598	.897
30	2.919	3.649	7.297	10.946	14.595	21.892
32½	.918	.648	.296	.944	.592	.888
33¾	.918	.648	.295	.943	.590	.885
35	.918	.647	.294	.941	.589	.883
37½	.917	.646	.293	.939	.585	.878
40	2.916	3.646	7.291	10.937	14.582	21.874
41¼	.916	.645	.290	.936	.581	.871
42½	.916	.645	.290	.934	.579	.869
45	.915	.644	.288	.932	.576	.864
47½	.915	.643	.286	.930	.573	.859
48¾	.914	.643	.286	.928	.571	.857
50	2.914	3.642	7.285	10.927	14.570	21.855
52½	.913	.642	.283	.925	.566	.850
55	.913	.641	.282	.922	.563	.845
56¼	.912	.640	.281	.921	.562	.842
57½	.912	.640	.280	.920	.560	.840
00	.911	3.639	7.278	10.918	14.557	21.835
02½	.911	.638	.277	.915	.554	.830
03¾	.910	.638	.276	.914	.552	.828
05	.910	.638	.275	.913	.550	.826
07½	.909	.637	.274	.910	.547	.821
10	2.909	3.636	7.272	10.908	14.544	21.816
11¼	.908	.636	.271	.907	.542	.813
12½	.908	.635	.270	.906	.541	.811
15	.907	.634	.269	.903	.537	.806
17½	.907	.634	.267	.901	.534	.801
18¾	.906	.633	.266	.899	.532	.799
20	2.906	3.633	7.265	10.898	14.531	21.796
22½	.905	.632	.264	.896	.528	.791
25	.905	.631	.262	.893	.524	.786
26¼	.904	.631	.261	.892	.523	.784
27½	.904	.630	.260	.891	.521	.781
30	2.904	3.629	7.259	10.888	14.518	21.777
32½	.903	.629	.257	.886	.514	.772
33¾	.903	.628	.256	.884	.513	.769
35	.902	.628	.255	.883	.511	.766
37½	.902	.627	.254	.881	.508	.762
0	2.901	3.626	7.252	10.878	14.504	21.757
1¼	.901	.626	.251	.877	.503	.754
2½	.900	.625	.251	.876	.501	.752
5	.900	.624	.249	.873	.498	.747
7½	.899	.624	.247	.871	.494	.741
8¾	.899	.623	.246	.869	.493	.739
0	2.898	3.623	7.245	10.868	14.491	21.736
2½	.898	.622	.244	.866	.488	.731
5	.897	.621	.242	.863	.484	.726
6¼	.896	.621	.241	.862	.483	.724
7½	.896	.620	.240	.861	.481	.721
0	2.895	3.619	7.239	10.858	14.477	21.716

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 16°	1¼	3.781	0.000
	2½	7.563	.001
	3¾	11.345	.002
	5	15.126	.003
	6¼	18.908	.005
	7½	22.690	.007
	10	30.253	.012
	12½	37.816	.018
	15	45.379	.026
For latitude 17°	1¼	3.782	0.000
	2½	7.564	.001
	3¾	11.346	.002
	5	15.128	.003
	6¼	18.910	.005
	7½	22.692	.007
	10	30.256	.012
	12½	37.820	.019
	15	45.384	.028
For latitude 18°	1¼	3.782	0.000
	2½	7.565	.001
	3¾	11.347	.002
	5	15.129	.003
	6¼	18.912	.005
	7½	22.694	.007
	10	30.259	.013
	12½	37.824	.020
	15	45.388	.029

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
18	00	2.895	3.619	7.239	10.858	14.477	21.716
	02½	.895	.618	.237	.855	.474	.711
	03¾	.894	.618	.236	.854	.472	.708
	05	.894	.618	.235	.853	.471	.706
	07½	.893	.617	.234	.850	.467	.701
	10	2.893	3.616	7.232	10.848	14.464	21.696
	11¼	.892	.616	.231	.847	.462	.693
	12½	.892	.615	.230	.845	.460	.690
	15	.891	.614	.228	.843	.457	.685
	17½	.891	.613	.227	.840	.453	.680
	18¾	.890	.613	.226	.839	.452	.678
	20	2.890	3.612	7.225	10.837	14.450	21.675
	22½	.889	.612	.223	.835	.447	.670
	25	.889	.611	.222	.832	.443	.665
	26¼	.888	.610	.221	.831	.441	.662
	27½	.888	.610	.220	.830	.440	.659
	30	2.887	3.609	7.218	10.827	14.436	21.654
	32½	.887	.608	.216	.824	.433	.649
	33¾	.886	.608	.215	.823	.431	.646
	35	.886	.607	.215	.822	.429	.644
	37½	.885	.606	.213	.819	.426	.638
	40	2.884	3.606	7.211	10.817	14.422	21.633
	41¼	.884	.605	.210	.815	.420	.629
	42½	.884	.605	.209	.814	.419	.628
	45	.883	.604	.208	.811	.415	.623
	47½	.882	.603	.206	.809	.411	.617
	48¾	.882	.602	.205	.807	.410	.615
	50	2.882	3.602	7.204	10.806	11.408	21.612
	52½	.881	.601	.202	.803	.404	.607
	55	.880	.600	.200	.801	.401	.601
	56¼	.880	.600	.199	.799	.399	.598
	57½	.879	.599	.199	.798	.397	.596
19	00	2.879	3.598	7.197	10.795	14.394	21.591
	02½	.878	.598	.195	.793	.390	.585
	03¾	.878	.597	.194	.791	.388	.582
	05	.877	.597	.193	.790	.386	.580
	07½	.877	.596	.191	.787	.383	.574
	10	2.876	3.595	7.190	10.784	14.379	21.569
	11¼	.875	.594	.189	783	.377	.566
	12½	.875	.594	.188	.782	.376	.563
	15	.874	.593	.186	.779	.372	.558
	17½	.874	.592	.184	.776	.368	.553
	18¾	.873	.592	.183	.775	.367	.550
	20	2.873	3.591	7.182	10.774	14.365	21.547
	22½	.872	.590	.181	.771	.361	.542
	25	.872	.589	.179	.768	.357	.536
	26¼	.871	.589	.178	.766	.356	.533
	27½	.871	.588	.177	.765	.354	.531
	30	2.870	3.588	7.175	10.763	14.350	21.525
	32½	.869	.587	.173	.760	.346	.520
	33¾	.869	.586	.172	.758	.345	.517
	35	.869	.586	.171	.757	.343	.514
	37½	.868	.585	.169	.754	.339	.508
	40	2.867	3.584	7.168	10.751	14.335	21.503
	41¼	.867	.583	.167	.750	.333	.500
	42½	.866	.583	.166	.749	.332	.497
	45	.866	.582	.164	.746	.328	.492
	47½	.865	.581	.162	.743	.324	.486
	48¾	.865	.581	.161	.742	.322	.484
	50	2.864	3.580	7.160	10.740	14.321	21.481
	52½	.863	.579	.158	.738	.317	.475
	55	.863	.578	.156	.735	.313	.469
	56¼	.862	.578	.156	.733	.311	.467
	57½	.862	.577	.155	.732	.309	.464
20	00	2.861	3.576	7.153	10.729	14.305	21.458

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 18°	1¼	3.782	0.000
	2½	7.565	.001
	3¾	11.347	.002
	5	15.129	.003
	6¼	18.912	.005
	7½	22.694	.007
	10	30.259	.013
	12½	37.824	.020
	15	45.388	.029
For latitude 19°	1¼	3.783	0.000
	2½	7.565	.001
	3¾	11.348	.002
	5	15.131	.003
	6¼	18.914	.005
	7½	22.697	.008
	10	30.262	.014
	12½	37.828	.021
	15	45.393	.031
For latitude 20°	1¼	3.783	0.000
	2½	7.566	.001
	3¾	11.350	.002
	5	15.133	.004
	6¼	18.916	.006
	7½	22.699	.008
	10	30.265	.014
	12½	37.832	.022
	15	45.398	.032

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
20 00	2. 861	3. 576	7. 153	10. 729	14. 305	21. 458
02½	. 860	. 575	. 151	. 726	. 302	. 452
03¾	. 860	. 575	. 150	. 725	. 300	. 450
05	. 860	. 574	. 149	. 723	. 298	. 447
07½	. 859	. 574	. 147	. 721	. 294	. 441
10	2. 858	3. 573	7. 145	10. 718	14. 290	21. 436
11¼	. 858	. 572	. 144	. 716	. 288	. 433
12½	. 857	. 572	. 143	. 715	. 287	. 430
15	. 857	. 571	. 141	. 712	. 283	. 424
17½	. 856	. 570	. 139	. 709	. 279	. 418
18¾	. 855	. 569	. 139	. 708	. 277	. 416
20	2. 855	3. 569	7. 138	10. 706	14. 275	21. 413
22½	. 854	. 568	. 136	. 703	. 271	. 407
25	. 853	. 567	. 134	. 701	. 267	. 401
26¼	. 853	. 566	. 133	. 699	. 265	. 398
27½	. 853	. 566	. 132	. 698	. 264	. 395
30	2. 852	3. 565	7. 130	10. 695	14. 260	21. 390
32½	. 851	. 564	. 128	. 692	. 256	. 384
33¾	. 851	. 563	. 127	. 690	. 254	. 381
35	. 850	. 563	. 126	. 689	. 252	. 378
37½	. 850	. 562	. 124	. 686	. 248	. 372
40	2. 849	3. 561	7. 122	10. 683	14. 244	21. 366
41¼	. 848	. 561	. 121	. 682	. 242	. 363
42½	. 848	. 560	. 120	. 680	. 240	. 361
45	. 847	. 559	. 118	. 677	. 237	. 355
47½	. 847	. 558	. 116	. 674	. 233	. 349
48¾	. 846	. 558	. 115	. 673	. 231	. 346
50	2. 846	3. 557	7. 114	10. 672	14. 229	21. 343
52½	. 845	. 556	. 112	. 669	. 225	. 337
55	. 844	. 555	. 110	. 666	. 221	. 331
56¼	. 844	. 555	. 110	. 664	. 219	. 328
57½	. 843	. 554	. 108	. 663	. 217	. 325
00	2. 843	3. 553	7. 106	10. 660	14. 213	21. 319
02½	. 842	. 552	. 104	. 657	. 209	. 313
03¾	. 841	. 552	. 104	. 655	. 207	. 311
05	. 841	. 551	. 103	. 654	. 205	. 308
07½	. 840	. 550	. 101	. 651	. 201	. 302
10	2. 839	3. 549	7. 099	10. 648	14. 197	21. 296
11¼	. 839	. 549	. 098	. 646	. 195	. 294
12½	. 839	. 548	. 097	. 645	. 193	. 290
15	. 838	. 547	. 095	. 642	. 189	. 284
17½	. 837	. 546	. 093	. 639	. 185	. 278
18¾	. 837	. 546	. 092	. 637	. 183	. 275
20	2. 836	3. 545	7. 091	10. 636	14. 181	21. 272
22½	. 835	. 544	. 089	. 633	. 177	. 266
25	. 835	. 543	. 087	. 630	. 173	. 260
26¼	. 834	. 543	. 086	. 628	. 171	. 257
27½	. 834	. 542	. 085	. 627	. 169	. 254
30	2. 833	3. 541	7. 083	10. 624	14. 165	21. 248
32½	. 832	. 540	. 081	. 621	. 161	. 242
33¾	. 832	. 540	. 080	. 619	. 159	. 239
35	. 831	. 539	. 078	. 618	. 157	. 235
37½	. 831	. 538	. 076	. 615	. 153	. 229
40	2. 830	3. 537	7. 074	10. 612	14. 149	21. 223
41¼	. 829	. 537	. 073	. 610	. 147	. 220
42½	. 829	. 536	. 072	. 609	. 145	. 217
45	. 828	. 535	. 070	. 606	. 141	. 211
47½	. 827	. 534	. 068	. 602	. 137	. 205
48¾	. 827	. 534	. 067	. 601	. 135	. 202
50	2. 827	3. 533	7. 066	10. 599	14. 133	21. 199
52½	. 826	. 532	. 064	. 596	. 128	. 193
55	. 825	. 531	. 062	. 593	. 124	. 187
56¼	. 825	. 531	. 061	. 592	. 122	. 183
57½	. 824	. 530	. 060	. 590	. 120	. 180
00	2. 823	3. 529	7. 058	10. 587	14. 116	21. 174

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 20°	1¼	3. 783	0. 000
	2½	7. 566	. 001
	3¾	11. 350	. 002
	5	15. 133	. 004
	6¼	18. 916	. 006
	7½	22. 699	. 008
	10	30. 265	. 014
	12½	37. 832	. 022
	15	45. 398	. 032
For latitude 21°	1¼	3. 784	0. 000
	2½	7. 567	. 001
	3¾	11. 351	. 002
	5	15. 134	. 004
	6¼	18. 918	. 006
	7½	22. 702	. 008
	10	30. 269	. 015
	12½	37. 837	. 023
	15	45. 403	. 033
For latitude 22°	1¼	3. 784	0. 000
	2½	7. 568	. 001
	3¾	11. 352	. 002
	5	15. 136	. 004
	6¼	18. 921	. 006
	7½	22. 705	. 009
	10	30. 272	. 015
	12½	37. 841	. 024
	15	45. 409	. 035

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
22 00	2.823	3.529	7.058	10.587	14.116	21.174
02½	.822	.528	.056	.584	.112	.168
03¾	.822	.527	.055	.582	.110	.165
05	.822	.527	.054	.581	.108	.162
07½	.821	.526	.052	.578	.104	.156
10	2.820	3.525	7.050	10.575	14.100	21.149
11¼	.819	.524	.049	.573	.097	.146
12½	.819	.524	.048	.572	.095	.143
15	.818	.523	.046	.568	.091	.137
17½	.817	.522	.044	.565	.087	.131
18¾	.817	.521	.043	.564	.085	.128
20	2.817	3.521	7.041	10.562	14.083	21.124
22½	.816	.520	.039	.559	.079	.118
25	.815	.519	.037	.556	.074	.112
26¼	.815	.518	.036	.554	.072	.109
27½	.814	.518	.035	.553	.070	.105
30	2.813	3.517	7.033	10.550	14.066	21.099
32½	.812	.515	.031	.546	.062	.093
33¾	.812	.515	.030	.545	.060	.090
35	.811	.514	.029	.543	.058	.087
37½	.811	.513	.027	.540	.053	.080
40	2.810	3.512	7.025	10.537	14.049	21.074
41¼	.809	.512	.024	.535	.047	.071
42½	.809	.511	.022	.534	.045	.067
45	.808	.510	.020	.530	.041	.061
47½	.807	.509	.019	.527	.036	.055
48¾	.807	.509	.017	.526	.034	.051
50	2.806	3.508	7.016	10.524	14.032	21.048
52½	.806	.507	.014	.521	.028	.042
55	.805	.506	.012	.518	.024	.035
56¼	.804	.505	.011	.516	.021	.032
57½	.804	.505	.010	.515	.019	.029
23 00	2.803	3.504	7.008	10.511	14.015	21.023
02½	.802	.503	.005	.508	.011	.016
03¾	.802	.502	.004	.506	.009	.013
05	.801	.502	.003	.505	.006	.010
07½	.800	.501	.001	.502	.002	.003
10	2.800	3.499	6.999	10.498	13.998	20.997
11¼	.799	.499	.998	.497	.996	.994
12½	.799	.498	.997	.495	.994	.990
15	.798	.497	.995	.492	.989	.984
17½	.797	.496	.992	.489	.985	.977
18¾	.797	.496	.991	.487	.983	.974
20	2.796	3.495	6.990	10.485	13.980	20.971
22½	.795	.494	.988	.482	.976	.964
25	.794	.493	.986	.479	.972	.957
26¼	.794	.492	.985	.477	.969	.954
27½	.793	.492	.984	.475	.967	.951
30	2.793	3.491	6.981	10.472	13.963	20.944
32½	.792	.490	.979	.469	.958	.938
33¾	.791	.489	.978	.467	.956	.934
35	.791	.489	.977	.466	.954	.931
37½	.790	.487	.975	.462	.950	.925
40	2.789	3.486	6.973	10.459	13.945	20.918
41¼	.789	.486	.972	.457	.943	.915
42½	.788	.485	.970	.456	.941	.911
45	.787	.484	.968	.452	.937	.905
47½	.786	.483	.966	.449	.932	.898
48¾	.786	.482	.965	.447	.930	.895
50	2.786	3.482	6.964	10.446	13.928	20.891
52½	.785	.481	.962	.442	.923	.885
55	.784	.480	.959	.439	.919	.878
56¼	.783	.479	.958	.437	.916	.875
57½	.783	.479	.957	.436	.914	.871
24 00	2.782	3.477	6.955	10.432	13.910	20.865

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed paralle
	′	*Inches*	*Inch*
For latitude 22°	1¼	3.784	0.00
	2½	7.568	.00
	3¾	11.352	.00
	5	15.136	.00
	6¼	18.921	.00
	7½	22.705	.00
	10	30.272	.01
	12½	37.841	.02
	15	45.409	.03
For latitude 23°	1¼	3.784	0.00
	2½	7.569	.00
	3¾	11.354	.00
	5	15.138	.00
	6¼	18.923	.00
	7½	22.707	.00
	10	30.276	.01
	12½	37.846	.02
	15	45.415	.03
For latitude 24°	1¼	3.785	0.00
	2½	7.570	.00
	3¾	11.355	.00
	5	15.140	.00
	6¼	18.925	.00
	7½	22.710	.00
	10	30.280	.01
	12½	37.851	.02
	15	45.421	.03

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
24 00	2.782	3.477	6.955	10.432	13.910	20.865
02½	.781	.476	.953	.429	.905	.858
03¾	.781	.476	.952	.427	.903	.855
05	.780	.475	.950	.426	.901	.851
07½	.779	.474	.948	.422	.896	.844
10	2.778	3.473	6.946	10.419	13.892	20.838
11¼	.778	.472	.945	.417	.889	.834
12½	.777	.472	.944	.415	.887	.831
15	.777	.471	.941	.412	.883	.824
17½	.776	.470	.939	.409	.878	.817
18¾	.775	.469	.938	.407	.876	.814
20	2.775	3.468	6.937	10.405	13.874	20.811
22½	.774	.467	.935	.402	.869	.804
25	.773	.466	.932	.398	.864	.797
26¼	.772	.466	.931	.397	.862	.793
27½	.772	.465	.930	.395	.860	.790
30	2.771	3.464	6.928	10.392	13.855	20.783
32½	.770	.463	.925	.388	.851	.776
33¾	.770	.462	.924	.386	.849	.773
35	.769	.462	.923	.385	.846	.769
37½	.768	.460	.921	.381	.842	.763
40	2.767	3.459	6.919	10.378	13.837	20.756
41¼	.767	.459	.917	.376	.835	.752
42½	.766	.458	.916	.374	.833	.749
45	.766	.457	.914	.371	.828	.742
47½	.765	.456	.912	.367	.823	.735
48¾	.764	.455	.911	.366	.821	.732
50	2.764	3.455	6.909	10.364	13.819	20.728
52½	.763	.454	.907	.361	.814	.721
55	.762	.452	.905	.357	.809	.714
56¼	.761	.452	.904	.355	.807	.711
57½	.761	.451	.902	.354	.805	.707
00	2.760	3.450	6.900	10.350	13.800	20.700
02½	.759	.449	.898	.347	.796	.693
03¾	.759	.448	.897	.345	.793	.690
05	.758	.448	.895	.343	.791	.686
07½	.757	.447	.893	.340	.786	.679
10	2.756	3.445	6.891	10.336	13.781	20.672
11¼	.756	.445	.890	.334	.779	.669
12½	.755	.444	.888	.333	.777	.665
15	.754	.443	.886	.329	.772	.658
17½	.753	.442	.884	.325	.767	.651
18¾	.753	.441	.882	.324	.765	.647
20	2.753	3.441	6.881	10.322	13.763	20.644
22½	.752	.439	.879	.318	.758	.637
25	.751	.438	.877	.315	.753	.630
26¼	.750	.438	.875	.313	.751	.626
27½	.750	.437	.874	.311	.748	.623
30	2.749	3.436	6.872	10.308	13.744	20.616
32½	.748	.435	.870	.304	.739	.609
33¾	.747	.434	.868	.302	.737	.605
35	.747	.434	.867	.301	.734	.601
37½	.746	.432	.865	.297	.729	.594
40	2.745	3.431	6.862	10.294	13.725	20.587
41¼	.744	.431	.861	.292	.722	.583
42½	.744	.430	.860	.290	.720	.580
45	.743	.429	.858	.286	.715	.573
47½	.742	.428	.855	.283	.710	.565
48¾	.742	.427	.854	.281	.708	.562
50	2.741	3.426	6.853	10.279	13.706	20.558
52½	.740	.425	.850	.276	.701	.551
55	.739	.424	.848	.272	.696	.544
56¼	.739	.423	.847	.270	.694	.540
57½	.738	.423	.846	.268	.691	.537
00	2.737	3.422	6.843	10.265	13.686	20.530

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 24°	1¼	3.785	0.000
	2½	7.570	.001
	3¾	11.355	.002
	5	15.140	.004
	6¼	18.925	.006
	7½	22.710	.009
	10	30.280	.016
	12½	37.851	.026
	15	45.421	.037
For latitude 25°	1¼	3.786	0.000
	2½	7.571	.001
	3¾	11.357	.002
	5	15.142	.004
	6¼	18.928	.007
	7½	22.713	.010
	10	30.284	.017
	12½	37.856	.026
	15	45.426	.038
For latitude 26°	1¼	3.786	0.000
	2½	7.572	.001
	3¾	11.358	.002
	5	15.144	.004
	6¼	18.931	.007
	7½	22.717	.010
	10	30.289	.017
	12½	37.861	.027
	15	45.433	.039

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
26 00	2.737	3.422	6.843	10.265	13.686	20.530
02½	.736	.420	.841	.261	.682	.522
03¾	.736	.420	.840	.259	.679	.519
05	.735	.419	.838	.258	.677	.515
07½	.734	.418	.836	.256	.672	.508
10	2.733	3.417	6.833	10.250	13.667	20.500
11¼	.733	.416	.832	.248	.665	.497
12½	.732	.416	.831	.247	.662	.493
15	.731	.414	.829	.243	.657	.486
17½	.730	.413	.826	.239	.652	.478
18¾	.730	.412	.825	.237	.650	.475
20	2.729	3.412	6.824	10.236	13.647	20.471
22½	.728	.411	.821	.232	.643	.464
25	.727	.409	.819	.228	.638	.456
26¼	.727	.409	.818	.226	.635	.453
27½	.727	.408	.816	.225	.633	.449
30	2.726	3.407	6.814	10.221	13.628	20.442
32½	.725	.406	.811	.217	.623	.434
33¾	.724	.405	.810	.215	.620	.431
35	.724	.404	.809	.213	.618	.427
37½	.723	.403	.807	.210	.613	.420
40	2.722	3.402	6.804	10.206	13.608	20.412
41¼	.721	.401	.803	.204	.606	.408
42½	.721	.401	.802	.202	.603	.405
45	.720	.400	.799	.199	.598	.397
47½	.719	.398	.797	.195	.593	.390
48¾	.718	.398	.795	.193	.591	.386
50	2.718	3.397	6.794	10.191	13.588	20.383
52½	.717	.396	.792	.188	.583	.375
55	.716	.395	.789	.184	.578	.368
56¼	.715	.394	.788	.182	.576	.364
57½	.715	.393	.787	.180	.573	.360
27 00	2.714	3.392	6.784	10.176	13.568	20.353
02½	.713	.391	.782	.173	.563	.345
03¾	.712	.390	.780	.171	.561	.341
05	.712	.390	.779	.169	.558	.338
07½	.711	.388	.777	.165	.553	.330
10	2.710	3.387	6.774	10.161	13.548	20.323
11¼	.709	.386	.773	.159	.546	.319
12½	.709	.386	.772	.157	.543	.315
15	.708	.384	.769	.154	.538	.307
17½	.707	.383	.767	.150	.533	.300
18¾	.706	.383	.765	.148	.531	.296
20	2.706	3.382	6.764	10.146	13.528	20.292
22½	.705	.381	.762	.142	.523	.285
25	.704	.380	.759	.139	.518	.277
26¼	.703	.379	.758	.137	.516	.273
27½	.703	.378	.756	.135	.513	.269
30	2.702	3.377	6.754	10.131	13.508	20.262
32½	.701	.376	.751	.127	.503	.254
33¾	.700	.375	.750	.125	.500	.250
35	.700	.374	.749	.123	.498	.247
37½	.699	.373	.746	.119	.493	.239
40	2.697	3.372	6.744	10.116	13.488	20.231
41¼	.697	.371	.742	.114	.485	.227
42½	.696	.371	.741	.112	.482	.224
45	.696	.369	.739	.108	.477	.216
47½	.694	.368	.736	.104	.472	.208
48¾	.694	.367	.735	.102	.470	.204
50	2.693	3.367	6.734	10.100	13.467	20.201
52½	.692	.365	.731	.096	.462	.193
55	.691	.364	.728	.093	.457	.185
56¼	.691	.364	.727	.091	.454	.181
57½	.690	.363	.726	.089	.452	.177
28 00	2.689	3.362	6.723	10.085	13.446	20.170

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of develope paralle
	′	*Inches*	*Inch*
For latitude 26°	1¼	3.786	0.00
	2½	7.572	.00
	3¾	11.358	.00
	5	15.144	.00
	6¼	18.931	.00
	7½	22.717	.01
	10	30.289	.01
	12½	37.861	.02
	15	45.433	.03
For latitude 27°	1¼	3.787	0.00
	2½	7.573	.00
	3¾	11.360	.00
	5	15.146	.00
	6¼	18.933	.00
	7½	22.720	.01
	10	30.293	.01
	12½	37.867	.02
	15	45.439	.04
For latitude 28°	1¼	3.787	0.00
	2½	7.574	.00
	3¾	11.362	.00
	5	15.148	.00
	6¼	18.936	.00
	7½	22.723	.01
	10	30.297	.01
	12½	37.872	.02
	15	45.446	.04

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
28 00	2.689	3.362	6.723	10.085	13.446	20.170
02½	.688	.360	.721	.081	.441	.162
03¾	.688	.360	.719	.079	.439	.158
05	.687	.359	.718	.077	.436	.154
07½	.686	.358	.715	.073	.431	.146
10	2.685	3.356	6.713	10.069	13.426	20.138
11¼	.685	.356	.711	.067	.423	.134
12½	.684	.355	.710	.065	.420	.131
15	.683	.354	.708	.061	.415	.123
17½	.682	.353	.705	.057	.410	.115
18¾	.681	.352	.704	.055	.407	.111
20	2.681	3.351	6.702	10.054	13.405	20.107
22½	.680	.350	.700	.050	.399	.099
25	.679	.349	.697	.046	.394	.091
26¼	.678	.348	.696	.044	.392	.086
27½	.678	.347	.694	.042	.389	.083
30	2.677	3.346	6.692	10.038	13.384	20.076
32½	.676	.345	.689	.034	.378	.068
33¾	.675	.344	.688	.032	.376	.064
35	.675	.343	.687	.030	.373	.060
37½	.674	.342	.684	.026	.368	.052
40	2.673	3.341	6.681	10.022	13.363	20.044
41¼	.672	.340	.680	.020	.360	.040
42½	.671	.339	.679	.018	.357	.036
45	.670	.338	.676	.014	.352	.028
47½	.669	.337	.673	.010	.347	.020
48¾	.669	.336	.672	.008	.344	.016
50	2.668	3.335	6.671	10.006	13.342	20.012
52½	.667	.334	.668	.002	.336	.004
55	.666	.333	.665	9.998	.331	19.996
56¼	.666	.332	.664	.996	.328	.992
57½	.665	.331	.663	.994	.326	.988
00	2.664	3.330	6.660	9.990	13.320	19.980
02½	.663	.329	.657	.986	.315	.972
03¾	.662	.328	.656	.984	.312	.968
05	.662	.327	.655	.982	.309	.964
07½	.661	.326	.652	.978	.304	.956
10	2.660	.325	6.649	9.974	13.299	19.948
11¼	.659	.324	.648	.972	.296	.944
12½	.659	.323	.647	.970	.293	.940
15	.658	.322	.644	.966	.288	.932
17½	.657	.321	.641	.962	.283	.924
18¾	.656	.320	.640	.960	.280	.920
20	2.655	3.319	6.639	9.958	13.277	19.916
22½	.654	.318	.636	.954	.272	.908
25	.653	.317	.633	.950	.266	.900
26¼	.653	.316	.632	.948	.264	.896
27½	.652	.315	.630	.946	.261	.891
30	2.651	3.314	6.628	9.942	13.256	19.883
32½	.650	.313	.625	.938	.250	.875
33¾	.649	.312	.624	.936	.247	.871
35	.649	.311	.622	.933	.245	.867
37½	.648	.310	.620	.929	.239	.859
40	2.647	.308	6.617	9.925	13.234	19.851
41¼	.646	.308	.616	.923	.231	.847
42½	.646	.307	.614	.921	.228	.842
45	.644	.306	.611	.917	.223	.834
47½	.643	.304	.609	.913	.217	.826
48¾	.643	.304	.607	.911	.215	.822
50	2.642	3.303	6.606	9.909	13.212	19.818
52½	.641	.302	.603	.905	.206	.810
55	.640	.300	.600	.901	.201	.801
56¼	.640	.300	.599	.899	.198	.797
57½	.639	.299	.598	.897	.195	.793
00	2.638	3.297	6.595	9.892	13.190	19.785

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 28°	1¼	3.787	0.000
	2½	7.574	.001
	3¾	11.362	.003
	5	15.148	.005
	6¼	18.936	.007
	7½	22.723	.010
	10	30.297	.018
	12½	37.872	.029
	15	45.446	.041
For latitude 29°	1¼	3.788	0.000
	2½	7.575	.001
	3¾	11.363	.003
	5	15.151	.005
	6¼	18.939	.007
	7½	22.726	.011
	10	30.302	.019
	12½	37.878	.029
	15	45.453	.042
For latitude 30°	1¼	3.788	0.000
	2½	7.577	.001
	3¾	11.365	.003
	5	15.153	.005
	6¼	18.942	.007
	7½	22.730	.011
	10	30.306	.019
	12½	37.884	.036
	15	45.460	.043

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
30	00	2.638	3.297	6.595	9.892	13.190	19.785
	02½	.637	.296	.592	.888	.184	.777
	03¾	.636	.295	.591	.886	.182	.772
	05	.636	.295	.589	.884	.179	.768
	07½	.635	.293	.587	.880	.173	.760
	10	2.633	3.292	6.584	9.876	13.168	19.752
	11¼	.633	.291	.583	.874	.165	.748
	12½	.632	.291	.581	.872	.162	.743
	15	.631	.289	.578	.867	.157	.735
	17½	.630	.288	.576	.863	.151	.727
	18¾	.630	.287	.574	.861	.148	.723
	20	2.629	3.286	6.573	9.859	13.146	19.719
	22½	.628	.285	.570	.855	.140	.710
	25	.627	.284	.567	.851	.135	.702
	26¼	.626	.283	.566	.849	.132	.698
	27½	.626	.282	.564	.847	.129	.693
	30	2.625	3.281	6.562	9.843	13.123	19.685
	32½	.623	.279	.559	.838	.118	.677
	33¾	.623	.278	.557	.836	.115	.672
	35	.622	.278	.556	.834	.112	.668
	37½	.621	.277	.553	.830	.106	.660
	40	2.620	3.275	6.550	9.826	13.101	19.651
	41¼	.620	.275	.549	.824	.098	.647
	42½	.619	.274	.548	.821	.095	.643
	45	.618	.272	.545	.817	.090	.634
	47½	.617	.271	.542	.813	.084	.626
	48¾	.616	.270	.541	.811	.081	.622
	50	2.616	2.270	6.539	9.809	13.078	19.618
	52½	.615	.268	.536	.805	.073	.609
	55	.613	.267	.534	.800	.067	.601
	56¼	.613	.266	.532	.798	.064	.596
	57½	.612	.265	.531	.796	.061	.592
31	00	2.611	2.264	6.528	9.792	13.056	19.584
	02½	.610	.263	.525	.788	.050	.575
	03¾	.609	.262	.524	.785	.047	.571
	05	.609	.261	.522	.783	.044	.566
	07½	.608	.260	.519	.779	.039	.558
	10	2.607	3.258	6.516	9.775	13.033	19.549
	11¼	.606	.258	515	.773	.030	.545
	12½	.605	.257	.514	.770	.027	.541
	15	.604	.255	.511	.766	.021	.532
	17½	.603	.254	.508	.762	.016	.524
	18¾	.603	.253	.506	.760	.013	.519
	20	2.602	3.253	6.505	9.757	13.010	19.515
	22½	.601	.251	.502	.753	.004	.506
	25	.600	.250	.499	.749	12.999	.498
	26¼	.599	.249	.498	.747	.996	.493
	27½	.599	.248	.496	.745	.993	.489
	30	2.597	3.247	6.494	9.740	12.987	19.481
	32½	.596	.245	.491	.736	.981	.472
	33¾	.596	.245	.489	.734	.978	.468
	35	.595	.244	.488	.732	.976	.463
	37½	.594	.242	.485	.727	.970	.455
	40	2.593	3.241	6.482	9.723	12.964	19.446
	41¼	.592	.240	481	.721	.961	.442
	42½	.592	.240	.479	.719	.958	.437
	45	.591	.238	.476	.714	.952	.429
	47½	.589	.237	.473	.710	.947	.420
	48¾	.589	.236	.472	.708	.944	.416
	50	2.588	3.235	6.470	9.706	12.941	19.411
	52½	.587	.234	.467	.701	.935	.402
	55	.586	.232	.465	.697	.929	.394
	56¼	.585	.232	.463	.695	.926	.389
	57½	.585	.231	.462	.693	.923	.385
32	00	2.583	3.229	6.459	9.688	12.917	19.376

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of develope paralle
	′	*Inches*	*Inch*
For latitude 30°	1¼	3.788	0.00
	2½	7.577	.00
	3¾	11.365	.00
	5	15.153	.00
	6¼	18.942	.00
	7½	22.730	.01
	10	30.306	01
	12½	37.884	.03
	15	45.460	.04
For latitude 31°	1¼	3.789	0.00
	2½	7.578	.00
	3¾	11.367	.00
	5	15.155	.00
	6¼	18.945	.00
	7½	22.733	.01
	10	30.311	.02
	12½	37.890	.03
	15	45.467	.04
For latitude 32°	1¼	3.789	0.00
	2½	7.579	.00
	3¾	11.369	.00
	5	15.158	.00
	6¼	18.948	.00
	7½	22.737	.01
	10	30.316	.02
	12½	37.896	.03
	15	45.474	.04

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
2 00	2.583	3.229	6.459	9.688	12.917	19.376
02½	.582	.228	.456	.684	.912	.367
03¾	.582	.227	.454	.681	.909	.363
05	.581	.226	.453	.679	.906	.359
07½	.580	.225	.450	.675	.900	.351
10	2.579	3.224	6.447	9.671	12.894	19.341
11¼	.578	.223	.445	.668	.891	.337
12½	.578	.222	.444	.666	.888	.332
15	.576	.221	.441	.662	.882	.323
17½	.575	.219	.438	.657	.876	.315
18¾	.575	.218	.437	.655	.873	.310
20	2.574	3.218	6.435	9.653	12.871	19.306
22½	.573	.216	.432	.649	.865	.297
25	.572	.215	.429	.644	.859	.288
26¼	.571	.214	.428	.642	.856	.284
27½	.571	.213	.426	.640	.853	.279
30	2.569	3.212	6.423	9.635	12.847	19.270
32½	.568	.210	.420	.631	.841	.261
33¾	.568	.209	.419	.628	.838	.257
35	.567	.209	.417	.626	.835	.252
37½	.566	.207	.415	.622	.829	.244
40	2.565	3.206	6.412	9.617	12.823	19.235
41¼	.564	.205	.410	.615	.820	.230
42½	.562	.204	.409	.613	.817	.226
45	.562	.203	.406	.608	.811	.217
47½	.561	.201	.403	.604	.805	.208
48¾	.560	.201	.401	.602	.802	.203
50	2.560	3.200	6.400	9.599	12.799	19.199
52½	.559	.198	.397	.595	.793	.190
55	.557	.197	.394	.590	.787	.181
56¼	.557	.196	.392	.588	.784	.176
57½	.556	.195	.391	.586	.781	.172
00	2.555	3.194	6.388	9.581	12.775	19.163
02½	.554	.192	.385	.577	.769	.154
03¾	.553	.192	.383	.575	.766	.149
05	.553	.191	.382	.572	.763	.145
07½	.551	.189	.379	.568	.757	.136
10	2.550	3.188	6.376	9.563	12.751	19.127
11¼	.550	.187	.374	.561	.748	.122
12½	.549	.186	.373	.559	.745	.118
15	.548	.185	.370	.554	.739	.109
17½	.547	.183	.367	.550	.733	.100
18¾	.546	.183	.365	.548	.730	.095
20	2.545	3.182	6.364	9.545	12.727	19.091
22½	.544	.180	.360	.541	.721	.081
25	.543	.179	.357	.536	.715	.072
26¼	.542	.178	.356	.534	.712	.068
27½	.542	.177	.354	.532	.709	.063
30	2.540	3.176	6.351	9.527	12.703	19.054
32½	.539	.174	.348	.523	.697	.045
33¾	.539	.173	.347	.520	.694	.040
35	.538	.173	.345	.518	.691	.036
37½	.537	.171	.342	.513	.684	.027
40	2.536	3.170	6.339	9.509	12.678	19.017
41¼	.535	.169	.338	.506	.675	.013
42½	.535	.168	.336	.504	.672	.008
45	.533	.167	.333	.500	.666	18.999
47½	.532	.165	.330	.495	.660	.990
48¾	.531	.164	.328	.493	.657	.985
50	2.531	3.163	6.327	9.490	12.654	18.981
52½	.530	.162	.324	.486	.648	.972
55	.528	.160	.321	.481	.642	.962
56¼	.528	.160	.319	.479	.638	.958
57½	.527	.159	.318	.477	.635	.953
00	2.526	3.157	6.315	9.472	12.629	18.944

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 32°	1¼	3.789	0.000
	2½	7.579	.001
	3¾	11.369	.003
	5	15.158	.005
	6¼	18.948	.008
	7½	22.737	.011
	10	30.316	.020
	12½	37.896	.031
	15	45.474	.045
For latitude 33°	1¼	3.790	0.000
	2½	7.580	.001
	3¾	11.370	.003
	5	15.160	.005
	6¼	18.951	.008
	7½	22.741	.011
	10	30.321	.020
	12½	37.902	.032
	15	45.481	.046
For latitude 34°	1¼	3.791	0.000
	2½	7.581	.001
	3¾	11.372	.003
	5	15.162	.005
	6¼	18.954	.008
	7½	22.744	.011
	10	30.326	.021
	12½	37.908	.032
	15	45.489	.046

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
34 00	2. 526	3. 157	6. 315	9. 472	12. 629	18. 944
02½	. 525	. 156	. 312	. 467	. 623	. 935
03¾	. 524	. 155	. 310	. 465	. 620	. 930
05	. 523	. 154	. 308	. 463	. 617	. 925
07½	. 522	. 153	. 305	. 458	. 611	. 916
10	2. 521	3. 151	6. 302	9. 453	12. 605	18. 907
11¼	. 520	. 150	. 301	. 451	. 601	. 902
12½	. 520	. 150	. 299	. 449	. 598	. 898
15	. 519	. 148	. 296	. 444	. 592	. 888
17½	. 517	. 146	. 293	. 439	. 586	. 879
18¾	. 517	. 146	. 291	. 437	. 583	. 874
20	2. 516	3. 145	6. 290	9. 435	12. 580	18. 870
22½	. 515	. 143	. 287	. 430	. 574	. 860
25	. 513	. 142	. 284	. 425	. 567	. 851
26¼	. 513	. 141	. 282	. 423	. 564	. 846
27½	. 512	. 140	. 281	. 421	. 561	. 842
30	2. 511	3. 139	6. 277	9. 416	12. 555	18. 832
32½	. 510	. 137	. 274	. 411	. 549	. 823
33¾	. 509	. 136	. 273	. 409	. 545	. 818
35	. 508	. 136	. 271	. 407	. 542	. 814
37½	. 507	. 134	. 268	. 402	. 536	. 804
40	2. 506	3. 132	6. 265	9. 397	12. 530	18. 795
41¼	. 505	. 132	. 263	. 395	. 527	. 790
42½	. 505	. 131	. 262	. 393	. 523	. 785
45	. 503	. 129	. 259	. 388	. 517	. 776
47½	. 502	. 128	. 255	. 383	. 511	. 766
48¾	. 502	. 127	. 254	. 381	. 508	. 762
50	2. 501	3. 126	6. 252	9. 378	12. 505	18. 757
52½	. 500	. 125	. 249	. 374	. 498	. 747
55	. 498	. 123	. 246	. 369	. 492	. 738
56¼	. 498	. 122	. 244	. 367	. 489	. 733
57½	. 497	. 121	. 243	. 364	. 486	. 728
35 00	42. 496	3. 120	6. 240	9. 359	12. 479	18. 719
02½	. 495	. 118	. 237	. 355	. 473	. 710
03¾	. 494	. 117	. 235	. 352	. 470	. 705
05	. 493	. 117	. 233	. 350	. 467	. 700
07½	. 492	. 115	. 230	. 345	. 460	. 691
10	2. 491	3. 113	6. 227	9. 341	12. 454	18. 681
11¼	. 490	. 113	. 225	. 338	. 451	. 676
12½	. 490	. 112	. 224	. 336	. 448	. 672
15	. 488	. 110	. 221	. 331	. 441	. 662
17½	. 487	. 109	. 217	. 326	. 435	. 652
18¾	. 486	. 108	. 216	. 324	. 432	. 648
20	2. 486	3. 107	6. 214	9. 321	12. 428	18. 643
22½	. 484	. 106	. 211	. 317	. 422	. 633
25	. 483	. 104	. 208	. 312	. 416	. 624
26¼	. 482	. 103	. 206	. 309	. 413	. 619
27½	. 482	. 102	. 205	. 307	. 409	. 614
30	2. 481	3. 101	6. 202	9. 302	12. 403	18. 605
32½	. 479	. 099	. 198	. 297	. 397	. 595
33¾	. 479	. 098	. 197	. 295	. 393	. 590
35	. 478	. 098	. 195	. 293	. 390	. 585
37½	. 477	. 096	. 192	. 288	. 384	. 576
40	2. 476	3. 094	6. 189	9. 283	12. 377	18. 566
41¼	. 475	. 093	. 187	. 281	. 374	. 561
42½	. 474	. 093	. 185	. 278	. 371	. 556
45	. 473	. 091	. 182	. 273	. 364	. 547
47½	. 472	. 089	. 179	. 268	. 358	. 537
48¾	. 471	. 089	. 177	. 266	. 355	. 532
50	2. 470	3. 088	6. 176	9. 264	12. 352	18. 527
52½	. 469	. 086	. 172	. 259	. 345	. 518
55	. 468	. 085	. 169	. 254	. 339	. 508
56¼	. 467	. 084	. 168	. 252	. 335	. 503
57½	. 466	. 083	. 166	. 249	. 332	. 498
36 00	2. 465	3. 081	6. 163	9. 244	12. 326	18. 488

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of de-velop parall
	′	*Inches*	*Inch*
For latitude 34°	1¼	3. 791	0. 0
	2½	7. 581	. 0
	3¾	11. 372	. 0
	5	15. 162	. 0
	6¼	18. 954	. 0
	7½	22. 744	. 0
	10	30. 326	. 0
	12½	37. 908	. 0
	15	45. 489	. 0
For latitude 35°	1¼	3. 791	0. 0
	2½	7. 583	. 0
	3¾	11. 374	. 0
	5	15. 165	. 0
	6¼	18. 957	. 0
	7½	22. 748	. 0
	10	30. 331	. 0
	12½	37. 914	. 0
	15	45. 496	. 0
For latitude 36°	1¼	3. 792	0. 0
	2½	7. 584	. 0
	3¾	11. 376	. 0
	5	15. 168	. 0
	6¼	18. 960	. 0
	7½	22. 752	. 0
	10	30. 336	. 0
	12½	37. 921	. 0
	15	45. 504	. 0

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
36 00	2.465	3.081	6.163	9.244	12.326	18.488
02½	.464	.080	.160	.239	.319	.479
03¾	.463	.079	.158	.237	.316	.474
05	.463	.078	.156	.234	.313	.469
07½	.461	.077	.153	.230	.306	.459
10	2.460	3.075	6.150	9.225	12.300	18.450
11¼	.459	.074	.148	.222	.296	.445
12½	.459	.073	.147	.220	.293	.440
15	.457	.072	.143	.215	.287	.430
17½	.456	.070	.140	.210	.280	.420
18¾	.455	.069	.138	.208	.277	.415
20	2.455	3.068	6.137	9.205	12.274	18.410
22½	.453	.067	.134	.200	.267	.401
25	.452	.065	.130	.195	.260	.391
26¼	.451	.064	.129	.193	.257	.386
27½	.451	.063	.127	.190	.254	.381
30	2.449	3.062	6.124	9.186	12.247	18.371
32½	.448	.060	.120	.181	.241	.361
33¾	.447	.059	.119	.178	.238	.356
35	.447	.059	.117	.176	.234	.351
37½	.446	.057	.114	.171	.228	.342
40	2.444	3.055	6.111	9.166	12.221	18.332
41¼	.444	.054	.109	.163	.218	.327
42½	.443	.054	.107	.161	.215	.322
45	.442	.052	.104	.156	.208	.312
47½	.440	.050	.101	.151	.201	.302
48¾	.440	.050	.099	.149	.198	297
50	2.439	3.049	6.097	9.146	12.195	18.292
52½	.438	.047	.094	.141	.188	.282
55	.436	.045	.091	.136	.181	.272
56¼	.436	.045	.089	.134	.178	.267
57½	.435	.044	.087	.131	.175	.262
00	2.434	3.042	6.084	9.126	12.168	18.252
02½	.432	.040	.081	.121	.162	.242
03¾	.432	.040	.079	.119	.158	.237
05	.431	.039	.077	.116	.155	.232
07½	.430	.037	.074	.111	.148	.222
10	2.428	3.035	6.071	9.106	12.142	18.212
11¼	.428	.035	.069	.104	.138	.207
12½	.427	.034	.067	.101	.135	.102
15	.426	.032	.064	.096	.128	.192
17½	.424	.030	.061	.091	.121	.182
18¾	.424	.030	.059	.089	.118	.177
20	2.423	3.029	6.057	9.086	12.115	18.172
22½	.422	.027	.054	.081	.108	.162
25	.420	.025	.051	.076	.101	.152
26¼	.420	.025	.049	.074	.098	.147
27½	.419	.024	.047	.071	.095	.142
30	2.418	3.022	6.044	9.066	12.088	18.132
32½	.416	.020	.041	.061	.081	.122
33¾	.416	.020	.039	.059	.078	.117
35	.415	.019	.037	.056	.075	.112
37½	.414	.017	.034	.051	.068	.102
40	2.412	3.015	6.031	9.046	12.061	18.092
41¼	.412	.014	.029	.043	.058	.087
42½	.411	.014	.027	.041	.054	.082
45	.410	.012	.024	.036	.048	.071
47½	.408	.010	.020	.031	.041	.061
48¾	.407	.009	.019	.028	.038	.056
50	2.407	3.009	6.017	9.026	12.034	18.051
52½	.405	.007	.014	.021	.027	.041
55	.404	.005	.010	.015	.021	.031
56¼	.403	.004	.009	.013	.017	.026
57½	.403	.003	.007	.010	.014	.021
00	2.401	3.002	6.004	9.005	12.007	18.011

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	° ′	*Inches*	*Inch*
For latitude 36°	1¼	3.792	0.000
	2½	7.584	.001
	3¾	11.376	.003
	5	15.168	.005
	6¼	18.960	.008
	7½	22.752	.012
	10	30.336	.021
	12½	37.921	.033
	15	45.504	.047
For latitude 37°	1¼	3.793	0.000
	2½	7.585	.001
	3¾	11.378	.003
	5	15.170	.005
	6¼	18.964	.008
	7½	22.756	.012
	10	30.341	.021
	12½	37.927	.033
	15	45.512	.048
For latitude 38°	1¼	3.793	0.000
	2½	7.587	.001
	3¾	11.380	.003
	5	15.173	.005
	6¼	18.967	.008
	7½	22.760	.012
	10	30.346	.021
	12½	37.935	.034
	15	45.520	.048

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
38	00	2.401	3.002	6.004	9.005	12.007	18.011
	02½	.400	.000	.000	.000	.000	.000
	03¾	.399	2.999	5.998	8.998	11.997	17.995
	05	.399	.998	.997	.995	.993	.990
	07½	.397	.997	.993	.990	.987	.980
	10	2.396	2.995	5.990	8.985	11.980	17.970
	11¼	.395	.994	.988	.982	.976	.965
	12½	.395	.993	.986	.980	.973	.959
	15	.393	.992	.983	.975	.966	.949
	17½	.392	.990	.980	.969	.959	.939
	18¾	.391	.989	.978	.967	.956	.934
	20	2.391	2.988	5.976	8.964	11.952	17.929
	22½	.389	.986	.973	.959	.946	.918
	25	.388	.985	.969	.954	.939	.908
	26¼	.387	.984	.968	.951	.935	.903
	27½	.386	.983	.966	.949	.932	.898
	30	2.385	2.981	5.963	9.944	11.925	17.888
	32½	.384	.980	.959	.939	.918	.877
	33¾	.383	.979	.957	.936	.915	.872
	35	.382	.978	.956	.933	.911	.867
	37½	.381	.976	.952	.928	.904	.857
	40	2.380	2.974	5.949	8.923	11.897	17.846
	41¼	.379	.974	.947	.921	.894	.841
	42½	.378	.973	.945	.918	.891	.836
	45	.377	.971	.942	.913	.884	.826
	47½	.375	.969	.938	.908	.877	.815
	48¾	.375	.968	.937	.905	.873	.810
	50	2.374	2.967	5.935	8.902	11.870	17.805
	52½	.373	.966	.931	.897	.863	.794
	55	.371	.964	.928	.892	.856	.784
	56¼	.370	.963	.926	.889	.852	.779
	57½	.370	.962	.924	.887	.849	.774
39	00	2.368	2.961	5.921	8.882	11.842	17.763
	02½	.367	.959	.918	.876	.835	.753
	03¾	.366	.958	.916	.874	.832	.748
	05	.366	.957	.914	.871	.828	.742
	07½	.364	.955	.911	.866	.821	.732
	10	2.363	2.954	5.907	8.861	11.814	17.721
	11¼	.362	.953	.905	.858	.811	.716
	12½	.361	.952	.904	.856	.807	.711
	15	.360	.950	.900	.850	.800	.701
	17½	.359	.948	.897	.845	.793	.690
	18¾	.358	.947	.895	.842	.790	.685
	20	2.357	2.947	5.893	8.840	11.786	17.680
	22½	.356	.945	.890	.835	.779	.669
	25	.354	.943	.886	.829	.772	.658
	26¼	.354	.942	.884	.827	.769	.653
	27½	.353	.941	.883	.824	.765	.648
	30	2.352	2.940	5.879	8.819	11.758	17.638
	32½	.350	.938	.876	.813	.751	.627
	33¾	.350	.937	.874	.811	.748	.622
	35	.349	.936	.872	.808	.744	.616
	37½	.347	.934	.869	.803	.737	.606
	40	2.346	2.933	5.865	8.798	11.730	17.595
	41¼	.345	.932	.863	.795	.727	.590
	42½	.345	.931	.862	.792	.723	.585
	45	.343	.929	.858	.787	.716	.574
	47½	.342	.927	.855	.782	.709	.564
	48¾	.341	.926	.853	.779	.705	.558
	50	2.340	2.925	5.851	8.776	11.702	17.553
	52½	.339	.924	.847	.777	.695	.542
	55	.338	.922	.844	.766	.688	.532
	56¼	.337	.921	.842	.763	.684	.526
	57½	.336	.920	.840	.761	.681	.521
40	00	2.335	2.918	5.837	8.755	11.674	17.510

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 38°	1¼	3.793	0.000
	2½	7.587	.001
	3¾	11.380	.003
	5	15.173	.005
	6¼	18.967	.008
	7½	22.760	.012
	10	30.346	.021
	12½	37.935	.034
	15	45.520	.048
For latitude 39°	1¼	3.794	0.000
	2½	7.588	.001
	3¾	11.382	.003
	5	15.176	.005
	6¼	18.970	.008
	7½	22.764	.012
	10	30.352	.022
	12½	37.940	.034
	15	45.527	.049
For latitude 40°	1¼	3.795	0.000
	2½	7.589	.001
	3¾	11.384	.003
	5	15.178	.005
	6¼	18.973	.009
	7½	22.768	.012
	10	30.357	.022
	12½	37.947	.034
	15	45.536	.049

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Lati- ude of arallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
00	2.335	2.918	5.837	8.755	11.674	17.510
02½	.333	.917	.833	.750	.667	.500
03¾	.333	.916	.831	.747	.663	.494
05	.332	.915	.830	.745	.659	.489
07½	.330	.913	.826	.739	.652	.479
10	2.329	2.911	5.823	8.734	11.645	17.468
11¼	.328	.910	.821	.731	.642	.462
12½	.328	.910	.819	.729	.638	.457
15	.326	.908	.815	.723	.631	.446
17½	.325	.906	.812	.718	.624	.436
18¾	.324	.905	.810	.715	.620	.430
20	2.323	2.904	5.808	8.712	11.617	17.425
22½	.322	.902	.805	.707	.610	.414
25	.321	.901	.801	.702	.602	.404
26¼	.320	.900	.799	.699	.599	.398
27½	.319	.899	.798	.696	.595	.393
30	2.318	2.897	5.794	8.691	11.588	17.382
32½	.316	.895	.790	.686	.581	.371
33¾	.315	.894	.789	.683	.577	.366
35	.315	.893	.787	.680	.574	.361
37½	.313	.892	.783	.675	.567	.350
40	2.312	2.890	5.780	8.670	11.559	17.339
41¼	.311	.889	.778	.667	.556	.334
42½	.310	.888	.776	.664	.552	.328
45	.309	.886	.772	.659	.545	.317
47½	.308	.884	.769	.653	.538	.306
48¾	.307	.884	.767	.651	.534	.301
50	2.306	2.883	5.765	8.648	11.531	17.296
52½	.305	.881	.762	.642	.523	.285
55	.303	.879	.758	.637	.516	.274
56¼	.303	.878	.756	.634	.512	.269
57½	.302	.877	.754	.632	.509	.263
00	2.300	2.875	5.751	8.626	11.502	17.252
02½	.299	.874	.747	.621	.494	.241
03¾	.298	.873	.745	.618	.491	.236
05	.297	.872	.744	.615	.487	.231
07½	.296	.870	.740	.610	.480	.220
10	2.295	2.868	5.736	8.604	11.473	17.209
11¼	.294	.867	.734	.602	.469	.203
12½	.293	.866	.733	.599	.465	.198
15	.292	.864	.729	.594	.458	.187
17½	.290	.863	.725	.588	.451	.176
18¾	.289	.862	.724	.585	.447	.171
20	2.289	2.862	5.722	8.583	11.443	17.165
22½	.287	.859	.718	.577	.436	.154
25	.286	.857	.714	.572	.429	.143
26¼	.285	.856	.713	.569	.425	.138
27½	.284	.855	.711	.566	.422	.132
30	2.283	2.854	5.707	8.561	11.414	17.121
32½	.281	.852	.703	.555	.407	.110
33¾	.281	.851	.702	.552	.403	.105
35	.280	.850	.700	.550	.400	.099
37½	.279	.848	.696	.544	.392	.088
40	2.277	2.846	5.692	8.539	11.385	17.077
41¼	.276	.845	.691	.536	.381	.072
42½	.276	.844	.689	.533	.378	.066
45	.274	.843	.685	.528	.370	.055
47½	.273	.841	.681	.522	.363	.044
48¾	.272	.840	.680	.519	.359	.039
50	2.271	2.839	5.678	8.517	11.356	17.033
52½	.270	.837	.674	.511	.348	.022
55	.268	.835	.670	.506	.341	.011
56¼	.267	.834	.669	.503	.337	.006
57½	.267	.833	.667	.500	.333	.000
00	2.265	2.831	5.663	8.494	11.326	16.989

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 40°	1¼	3.795	0.000
	2½	7.589	.001
	3¾	11.384	.003
	5	15.178	.005
	6¼	18.973	.009
	7½	22.768	.012
	10	30.357	.022
	12½	37.947	.034
	15	45.536	.049
For latitude 41°	1¼	3.795	0.000
	2½	7.590	.001
	3¾	11.386	.003
	5	15.181	.005
	6¼	18.977	.009
	7½	22.772	.012
	10	30.362	.022
	12½	37.953	.034
	15	45.544	.049
For latitude 42°	1¼	3.796	0.000
	2½	7.592	.001
	3¾	11.388	.003
	5	15.184	.006
	6¼	18.980	.009
	7½	22.776	.012
	10	30.367	.022
	12½	37.960	.034
	15	45.551	.050

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel — Longitude interval 1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
42 00	2.265	2.831	5.663	8.494	11.326	16.989
02½	.264	.830	.659	.489	.319	.978
03¾	.263	.829	.657	.486	.315	.972
05	.262	.828	.656	.483	.311	.967
07½	.261	.826	.652	.478	.304	.956
10	2.259	2.824	5.648	8.472	11.296	16.945
11¼	.259	.823	.646	.470	.293	.939
12½	.258	.822	.644	.467	.289	.933
15	.256	.820	.641	.462	.282	.922
17½	.255	.819	.637	.456	.274	.911
18¾	.254	.818	.635	.453	.270	.906
20	2.253	2.817	5.633	8.450	11.267	16.900
22½	.252	.815	.630	.444	.259	.889
25	.250	.813	.626	.439	.252	.878
26¼	.250	.812	.624	.436	.248	.872
27½	.249	.811	.622	.433	.244	.867
30	2.247	2.809	5.618	8.428	11.237	16.855
32½	.246	.807	.615	.422	.229	.844
33¾	.245	.807	.613	.419	.226	.839
35	.244	.805	.611	.416	.222	.833
37½	.243	.804	.607	.411	.215	.822
40	2.241	2.802	5.604	8.405	11.207	16.811
41¼	.241	.801	.602	.402	.203	.805
42½	.240	.800	.600	.400	.200	.799
45	.238	.798	.596	.394	.192	.788
47½	.237	.796	.592	.388	.184	.777
48¾	.236	.795	.590	.386	.181	.771
50	2.235	2.794	5.589	8.383	11.177	16.766
52½	.234	.792	.585	.377	.169	.754
55	.232	.790	.581	.371	.162	.743
56¼	.232	.790	.579	.369	.158	.737
57½	.231	.789	.577	.366	.154	.732
43 00	2.229	2.787	5.574	8.360	11.147	16.721
02½	.228	.785	.570	.355	.139	.709
03¾	.227	.784	.568	.352	.136	.704
05	.226	.783	.566	.349	.132	.698
07½	.225	.781	.562	.343	.124	.687
10	2.223	2.779	5.558	8.338	11.117	16.675
11¼	.223	.778	.557	.335	.113	.670
12½	.222	.777	.555	.332	.109	.664
15	.220	.775	.551	.326	.102	.652
17½	.219	.774	.547	.321	.094	.641
18¾	.218	.773	.545	.318	.090	.635
20	2.217	2.772	5.543	8.315	11.086	16.630
22½	.216	.770	.539	.309	.079	.618
25	.214	.768	.536	.304	.071	.607
26¼	.213	.767	.534	.301	.068	.601
27½	.213	.766	.532	.298	.064	.596
30	2.211	2.764	5.528	8.292	11.056	16.584
32½	.210	.762	.524	.286	.049	.573
33¾	.209	.761	.522	.284	.045	.567
35	.208	.760	.520	.281	.041	.561
37½	.207	.758	.517	.275	.033	.550
40	2.205	2.756	5.513	8.269	11.026	16.538
41¼	.204	.755	.511	.266	.022	.533
42½	.204	.754	.509	.263	.018	.527
45	.202	.753	.505	.258	.010	.516
47½	.201	.751	.501	.252	.003	.504
48¾	.200	.750	.499	.249	10.999	.498
50	2.199	2.749	5.498	8.246	10.995	16.493
52½	.197	.747	.494	.241	.987	.481
55	.196	.745	.490	.235	.980	.470
56¼	.195	.744	.488	.232	.976	.464
57½	.194	.743	.486	.229	.972	.458
44 00	2.193	2.741	5.482	8.223	10.964	16.447

Ordinates of developed parallel and meridional distances — Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 42°	1¼	3.796	0.000
	2½	7.592	.001
	3¾	11.388	.003
	5	15.184	.006
	6¼	18.980	.009
	7½	22.776	.012
	10	30.367	.022
	12½	37.960	.034
	15	45.551	.050
For latitude 43°	1¼	3.797	0.000
	2½	7.593	.001
	3¾	11.390	.003
	5	15.186	.006
	6¼	18.983	.009
	7½	22.780	.012
	10	30.373	.022
	12½	37.967	.035
	15	45.560	.050
For latitude 44°	1¼	3.797	0.000
	2½	7.594	.001
	3¾	11.392	.003
	5	15.189	.006
	6¼	18.987	.009
	7½	22.784	.012
	10	30.378	.022
	12½	37.974	.035
	15	45.568	.050

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
44	00	2.193	2.741	5.482	8.223	10.964	16.447
	02½	.191	.739	.478	.218	.957	.435
	03¾	.191	.738	.476	.215	.953	.429
	05	.190	.737	.475	.212	.949	.424
	07½	.188	.735	.471	.206	.941	.412
	10	2.187	2.733	5.467	8.200	10.934	16.401
	11¼	.186	.732	.465	.197	.930	.395
	12½	.185	.732	.463	.195	.926	.389
	15	.184	.730	.459	.189	.918	.376
	17½	.182	.728	.455	.183	.911	.366
	18¾	.181	.727	.453	.180	.907	.360
	20	2.181	2.726	5.451	8.177	10.903	16.354
	22½	.179	.724	.448	.171	.895	.343
	25	.177	.722	.444	.166	.887	.331
	26¼	.177	.721	.442	.163	.884	.325
	27½	.176	.720	.440	.160	.880	.320
	30	2.174	2.718	5.436	8.154	10.872	16.308
	32½	.173	.716	.432	.148	.864	.296
	33¾	.172	.715	.430	.145	.860	.291
	35	.171	.714	.428	.142	.856	.285
	37½	.170	.712	.424	.137	.849	.273
	40	2.168	2.710	5.420	8.131	10.841	16.261
	41¼	.167	.709	.419	.128	.837	.256
	42½	.167	.708	.417	.125	.833	.250
	45	.165	.706	.413	.119	.825	.238
	47½	.164	.704	.409	.113	.818	.227
	48¾	.163	.703	.407	.110	.814	.221
	50	2.162	2.702	5.405	8.107	10.810	16.215
	52½	.160	.701	.401	.102	.802	.203
	55	.159	.699	.397	.096	.794	.191
	56¼	.158	.698	.395	.093	.790	.186
	57½	.157	.697	.393	.090	.787	.180
5	00	2.156	2.695	5.389	8.084	10.779	16.168
	02½	.154	.693	.385	.078	.770	.156
	03¾	.153	.692	.383	.075	.767	.150
	05	.153	.691	.381	.072	.763	.144
	07½	.151	.689	.378	.066	.755	.133
	10	2.149	2.687	5.374	8.061	10.747	16.121
	11¼	.149	.686	.372	.058	.743	.115
	12½	.148	.685	.370	.055	.740	.109
	15	.146	.683	.366	.049	.732	.097
	17½	.145	.681	.362	.043	.724	.086
	18¾	.144	.680	.360	.040	.720	.080
	20	2.143	2.679	5.358	8.037	10.716	16.074
	22½	.142	.677	.354	.031	.708	.062
	25	.140	.675	.350	.025	.700	.050
	26¼	.139	.674	.348	.022	.696	.045
	27½	.139	.673	.346	.019	.692	.039
	30	2.137	2.671	5.342	8.013	10.685	16.027
	32½	.135	.669	.338	.007	.677	.015
	33¾	.134	.668	.336	.004	.673	.009
	35	.134	.667	.334	.001	.669	.003
	37½	.132	.665	.330	7.996	.661	15.991
	40	2.131	2.663	5.326	7.990	10.653	15.979
	41¼	.130	.662	.324	.987	.649	.973
	42½	.129	.661	.323	.984	.645	.968
	45	.127	.659	.319	.978	.637	.956
	47½	.126	.657	.315	.972	.629	.944
	48¾	.125	.656	.313	.969	.625	.938
	50	2.124	2.655	5.311	7.966	10.621	15.932
	52½	.123	.653	.307	.960	.613	.920
	55	.121	.651	.303	.954	.605	.908
	56¼	.120	.650	.301	.951	.601	.902
	57½	.119	.649	.299	.948	.597	.896
	00	2.118	2.647	5.295	7.942	10.590	15.884

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 44°	1¼	3.797	0.000
	2½	7.594	.001
	3¾	11.392	.003
	5	15.189	.006
	6¼	18.987	.009
	7½	22.784	.012
	10	30.378	.022
	12½	37.974	.035
	15	45.568	.050
For latitude 45°	1¼	3.798	0.000
	2½	7.596	.001
	3¾	11.394	.003
	5	15.192	.006
	6¼	18.990	.009
	7½	22.788	.012
	10	30.384	.022
	12½	37.980	.035
	15	45.576	.050
For latitude 46°	1¼	3.799	0.000
	2½	7.597	.001
	3¾	11.396	.003
	5	15.194	.006
	6¼	18.994	.009
	7½	22.792	.012
	10	30.389	.022
	12½	37.987	.035
	15	45.584	.050

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
46	00	2. 118	2. 647	5. 295	7. 942	10. 590	15. 884
	02½	. 116	. 645	. 291	. 936	. 582	. 872
	03¾	. 116	. 644	. 289	. 933	. 578	. 867
	05	. 115	. 643	. 287	. 930	. 574	. 861
	07½	. 113	. 641	. 283	. 924	. 566	. 849
	10	2. 112	2. 639	5. 279	7. 918	10. 558	15. 837
	11¼	. 111	. 638	. 277	. 915	. 554	. 831
	12½	. 110	. 637	. 275	. 912	. 550	. 825
	15	. 108	. 635	. 271	. 906	. 542	. 813
	17½	. 107	. 633	. 267	. 900	. 534	. 801
	18¾	. 106	. 632	. 265	. 897	. 530	. 795
	20	2. 105	2. 631	5. 263	7. 894	10. 526	15. 789
	22½	. 104	. 629	. 259	. 888	. 518	. 777
	25	. 102	. 627	. 255	. 882	. 510	. 765
	26¼	. 101	. 626	. 253	. 879	. 506	. 759
	27½	. 100	. 625	. 251	. 876	. 502	. 753
	30	2. 099	2. 623	5. 247	7. 870	10. 494	15. 741
	32½	. 097	. 621	. 243	. 864	. 486	. 729
	33¾	. 096	. 620	. 241	. 861	. 482	. 723
	35	. 096	. 619	. 239	. 858	. 478	. 717
	37½	. 094	. 617	. 235	. 852	. 470	. 705
	40	2. 092	2. 615	5. 231	7. 846	10. 462	15. 692
	41¼	. 092	. 614	. 229	. 843	. 458	. 686
	42½	. 091	. 613	. 227	. 840	. 454	. 680
	45	. 089	. 611	. 223	. 834	. 446	. 668
	47½	. 087	. 609	. 219	. 828	. 438	. 656
	48¾	. 087	. 608	. 217	. 825	. 434	. 650
	50	2. 086	2. 607	5. 215	7. 822	10. 429	15. 644
	52½	. 084	. 605	. 211	. 816	. 421	. 632
	55	. 083	. 603	. 207	. 810	. 413	. 620
	56¼	. 082	. 602	. 205	. 807	. 409	. 614
	57½	. 081	. 601	. 203	. 804	. 405	. 608
47	00	2. 079	2. 599	5. 199	7. 798	10. 397	15. 596
	02½	. 078	. 597	. 195	. 792	. 389	. 584
	03¾	. 077	. 596	. 192	. 789	. 385	. 577
	05	. 076	. 595	. 190	. 786	. 381	. 571
	07½	. 075	. 593	. 186	. 780	. 373	. 559
	10	2. 073	2. 591	5. 182	7. 774	10. 365	15. 547
	11¼	. 072	. 590	. 180	. 771	. 361	. 541
	12½	. 071	. 589	. 178	. 768	. 357	. 535
	15	. 070	. 587	. 174	. 763	. 349	. 523
	17½	. 068	. 585	. 170	. 755	. 341	. 511
	18¾	. 067	. 584	. 168	. 752	. 336	. 505
	20	2. 066	2. 583	5. 166	7. 749	10. 332	15. 499
	22½	. 065	. 581	. 162	. 743	. 324	. 486
	25	. 063	. 579	. 158	. 737	. 316	. 474
	26¼	. 062	. 578	. 156	. 734	. 312	. 468
	27½	. 062	. 577	. 154	. 731	. 308	. 462
	30	2. 060	2. 575	5. 150	7. 725	10. 300	15. 450
	32½	. 058	. 573	. 146	. 719	. 292	. 437
	33¾	. 058	. 572	. 144	. 716	. 288	. 431
	35	. 057	. 571	. 142	. 713	. 284	. 425
	37½	. 055	. 569	. 138	. 706	. 275	. 413
	40	2. 053	2. 566	5. 134	7. 700	10. 267	15. 401
	41¼	. 053	. 566	. 131	. 697	. 263	. 394
	42½	. 052	. 565	. 129	. 694	. 259	. 388
	45	. 050	. 563	. 125	. 688	. 251	. 376
	47½	. 049	. 561	. 121	. 682	. 243	. 364
	48¾	. 048	. 560	. 119	. 679	. 239	. 358
	50	2. 047	2. 559	5. 117	7. 676	10. 234	15. 352
	52½	. 045	. 557	. 113	. 670	. 226	. 339
	55	. 044	. 555	. 109	. 664	. 218	. 327
	56¼	. 043	. 553	. 107	. 660	. 214	. 321
	57½	. 042	. 552	. 105	. 657	. 210	. 315
48	00	2. 040	2. 550	5. 101	7. 651	10. 202	15. 302

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 46°	1¼	3. 799	0. 000
	2½	7. 597	. 001
	3¾	11. 396	. 003
	5	15. 194	. 006
	6¼	18. 994	. 009
	7½	22. 792	. 012
	10	30. 389	. 022
	12½	37. 987	. 035
	15	45. 584	. 050
For latitude 47°	1¼	3. 799	0. 000
	2½	7. 599	. 001
	3¾	11. 398	. 003
	5	15. 197	. 006
	6¼	18. 997	. 009
	7½	22. 796	. 012
	10	30. 394	. 022
	12½	37. 994	. 035
	15	45. 592	. 050
For latitude 48°	1¼	3. 800	0. 000
	2½	7. 600	. 001
	3¾	11. 400	. 003
	5	15. 200	. 006
	6¼	19. 000	. 009
	7½	22. 800	. 012
	10	30. 400	. 021
	12½	38. 001	. 035
	15	45. 600	. 050

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
48	00	2.040	2.550	5.101	7.651	10.202	15.302
	02½	.039	.548	.097	.645	.193	.290
	03¾	.038	.547	.095	.642	.189	.284
	05	.037	.546	.093	.639	.185	.278
	07½	.035	.544	.088	.633	.177	.265
	10	2.034	2.542	5.084	7.626	10.169	15.253
	11¼	.033	.541	.082	.623	.165	.247
	12½	.032	.540	.080	.620	.160	.241
	15	.030	.538	.076	.614	.152	.228
	17½	.029	.536	.072	.608	.144	.216
	18¾	.028	.535	.070	.605	.140	.210
	20	2.027	2.534	5.068	7.602	10.136	15.204
	22½	.025	.532	.064	.596	.127	.191
	25	.024	.530	.060	.589	.119	.179
	26¼	.023	.529	.058	.586	.115	.173
	27½	.022	.528	.055	.583	.111	.166
	30	2.020	2.526	5.051	7.577	10.103	15.154
	32½	.019	.524	.047	.571	.094	.142
	33¾	.018	.523	.045	.568	.090	.135
	35	.017	.521	.043	.564	.086	.129
	37½	.016	.519	.039	.558	.078	.117
	40	2.014	2.517	5.035	7.552	10.069	15.104
	41¼	.013	.516	.033	.549	.065	.098
	42½	.012	.515	.031	.546	.061	.092
	45	.011	.513	.027	.540	.053	.079
	47½	.009	.511	.022	.533	.045	.067
	48¾	.008	.510	.020	.530	.040	.061
	50	2.007	2.509	5.018	7.527	10.036	15.054
	52½	.006	.507	.014	.521	.028	.042
	55	.004	.505	.010	.515	.020	.029
	56¼	.003	.504	.008	.512	.015	.023
	57½	.002	.503	.006	.508	.011	.017
49	00	2.001	2.501	5.001	7.502	10.003	15.004
	02½	1.999	.499	4.997	.496	9.995	14.992
	03¾	.998	.498	.995	.493	.990	.986
	05	.997	.497	.993	.490	.986	.979
	07½	.996	.494	.989	.483	.978	.967
	10	1.994	2.492	4.985	7.477	9.970	14.954
	11¼	.993	.491	.983	.474	.965	.948
	12½	.992	.490	.981	.471	.961	.942
	15	.991	.488	.976	.465	.953	.929
	17½	.989	.486	.972	.458	.944	.917
	18¾	.988	.485	.970	.455	.940	.910
	20	1.987	2.484	4.968	7.452	9.936	14.904
	22½	.986	.482	.964	.446	.928	.891
	25	.984	.480	.960	.439	.919	.879
	26¼	.983	.479	.957	.436	.915	.872
	27½	.982	.478	.955	.433	.911	.866
	30	1.980	2.476	4.951	7.427	9.902	14.854
	32½	.979	.473	.947	.420	.894	.841
	33¾	.978	.472	.945	.417	.890	.835
	35	.977	.471	.943	.414	.886	.828
	37½	.975	.469	.939	.408	.877	.816
	40	1.974	2.467	4.934	7.401	9.869	14.803
	41¼	.973	.466	.932	.398	.864	.797
	42½	.972	.465	.930	.395	.860	.790
	45	.970	.463	.926	.389	.852	.778
	47½	.969	.461	.922	.383	.843	.765
	48¾	.968	.460	.920	.379	.839	.759
	50	1.967	2.459	4.918	7.376	9.835	14.753
	52½	.965	.457	.913	.370	.826	.740
	55	.964	.454	.909	.363	.818	.727
	56¼	.963	.453	.907	.360	.814	.721
	57½	.962	.452	.905	.357	.810	.714
0	00	1.960	2.450	4.901	7.351	9.801	14.702

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 48°	1¼	3.800	0.000
	2½	7.600	.001
	3¾	11.400	.003
	5	15.200	.005
	6¼	19.000	.009
	7½	22.800	.012
	10	30.400	.022
	12½	38.001	.034
	15	45.600	.050
For latitude 49°	1¼	3.801	0.000
	2½	7.601	.001
	3¾	11.402	.003
	5	15.202	.005
	6¼	19.004	.009
	7½	22.804	.012
	10	30.405	.022
	12½	38.007	.034
	15	45.608	.049
For latitude 50°	1¼	3.801	0.000
	2½	7.603	.001
	3¾	11.404	.003
	5	15.205	.005
	6¼	19.007	.009
	7½	22.808	.012
	10	30.411	.022
	12½	38.014	.034
	15	45.617	.049

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE II.—*Coordinates for the projection of maps, scale 1 : 24,000*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
50 00	1.960	2.450	4.901	7.351	9.801	14.702
02½	.959	.448	.896	.344	.793	.689
03¾	.958	.447	.894	.341	.788	.683
05	.957	.446	.892	.338	.784	.676
07½	.955	.444	.888	.332	.776	.664
10	1.953	2.442	4.884	7.325	9.767	14.651
11¼	.953	.441	.882	.322	.763	.645
12½	.952	.440	.879	.319	.759	.638
15	.950	.438	.875	.313	.750	.625
17½	.948	.435	.871	.306	.742	.613
18¾	.948	.434	.869	.303	.737	.606
20	1.947	2.433	4.867	7.300	9.733	14.600
22½	.945	.431	.862	.293	.725	.587
25	.943	.429	.858	.287	.716	.574
26¼	.942	.428	.856	.284	.712	.568
27½	.942	.427	.854	.281	.708	.561
30	1.940	2.425	4.850	7.274	9.699	14.549
32½	.938	.423	.845	.268	.691	.536
33¾	.937	.422	.843	.265	.686	.529
35	.936	.420	.841	.261	.682	.523
37½	.935	.418	.837	.255	.674	.510
40	1.933	2.416	4.833	7.249	9.665	14.498
41¼	.932	.415	.830	.246	.661	.491
42½	.931	.414	.828	.242	.656	.485
45	.930	.412	.824	.236	.648	.472
47½	.928	.410	.820	.229	.639	.459
48¾	.927	.409	.818	.226	.635	.453
50	1.926	2.408	4.815	7.223	9.631	14.446
52½	.924	.406	.811	.217	.622	.433
55	.923	.403	.807	.210	.614	.420
56¼	.922	.402	.805	.207	.609	.414
57½	.921	.401	.802	.204	.605	.408
51 00	1.919	2.399	4.798	7.197	9.596	14.395
02½	.918	.397	.794	.191	.588	.382
03¾	.917	.396	.792	.188	.583	.375
05	.916	.395	.790	.184	.579	.369
07½	.914	.393	.785	.178	.571	.356
10	1.912	2.390	4.781	7.171	9.562	14.343
11¼	.912	.389	.779	.168	.558	.336
12½	.911	.388	.777	.165	.553	.330
15	.909	.386	.772	.159	.545	.317
17½	.907	.384	.768	.152	.536	.304
18¾	.906	.383	.766	.149	.532	.298
20	1.906	2.382	4.764	7.146	9.528	14.291
22½	.904	.380	.759	.139	.519	.278
25	.902	.377	.755	.133	.510	.265
26¼	.901	.376	.753	.129	.506	.259
27½	.900	.375	.751	.126	.501	.252
30	1.899	2.373	4.746	7.120	9.493	14.239
32½	.897	.371	.742	.113	.484	.226
33¾	.896	.370	.740	.110	.480	.220
35	.895	.369	.738	.107	.476	.213
37½	.893	.367	.733	.100	.467	.200
40	1.892	2.364	4.729	7.094	9.458	14.187
41¼	.891	.363	.727	.090	.454	.181
42½	.890	.362	.725	.087	.450	.174
45	.888	.360	.720	.081	.441	.161
47½	.886	.358	.716	.074	.432	.148
48¾	.885	.357	.714	.071	.428	.142
50	1.885	2.356	4.712	7.068	9.424	14.135
52½	.883	.354	.707	.061	.415	.122
55	.881	.352	.703	.055	.406	.109
56¼	.880	.350	.701	.051	.402	.103
57½	.879	.349	.699	.048	.397	.096
52 00	1.878	2.347	4.694	7.042	9.389	14.083

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 50°	1¼	3.801	0.000
	2½	7.603	.001
	3¾	11.404	.003
	5	15.205	.005
	6¼	19.007	.009
	7½	22.808	.012
	10	30.411	.022
	12½	38.014	.034
	15	45.617	.049
For latitude 51°	1¼	3.802	0.000
	2½	7.604	.001
	3¾	11.406	.003
	5	15.208	.005
	6¼	19.010	.008
	7½	22.812	.012
	10	30.416	.022
	12½	38.021	.034
	15	45.625	.049

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
0 00	2.306	2.882	5.764	8.646	11.529	17.293
02½	.306	.882	.764	.646	.529	.293
03¾	.306	.882	.764	.646	.529	.293
05	.306	.882	.764	.646	.529	.293
07½	.306	.882	.764	.646	.529	.293
10	2.306	2.882	5.764	8.646	11.529	17.293
11¼	.306	.882	.764	.646	.528	.293
12½	.306	.882	.764	.646	.528	.293
15	.306	.882	.764	.646	.528	.293
17½	.306	.882	.764	.646	.528	.293
18¾	.306	.882	.764	.646	.528	.293
20	2.306	2.882	5.764	8.646	11.528	17.293
22½	.306	.882	.764	.646	.528	.293
25	.306	.882	.764	.646	.528	.292
26¼	.306	.882	.764	.646	.528	.292
27½	.306	.882	.764	.646	.528	.292
30	2.306	2.882	5.764	8.646	11.528	17.292
32½	.306	.882	.764	.646	.528	.292
33¾	.306	.882	.764	.646	.528	.292
35	.306	.882	.764	.646	.528	.292
37½	.306	.882	.764	.646	.528	.292
40	2.306	2.882	5.764	8.646	11.528	17.292
41¼	.306	.882	.764	.646	.528	.292
42½	.306	.882	.764	.646	.528	.291
45	.306	.882	.764	.646	.528	.291
47½	.305	.882	.764	.646	.527	.291
48¾	.305	.882	.764	.646	.527	.291
50	2.305	2.882	5.764	8.645	11.527	17.291
52½	.305	.882	.764	.645	.527	.291
55	.305	.882	.764	.645	.527	.291
56¼	.305	.882	.763	.645	.527	.290
57½	.305	.882	.763	.645	.527	.290
1 00	2.305	2.882	5.763	8.645	11.527	17.290
02½	.305	.882	.763	.645	.527	.290
03¾	.305	.882	.763	.645	.527	.290
05	.305	.882	.763	.645	.527	.290
07½	.305	.882	.763	.645	.526	.290
10	2.305	2.882	5.763	8.645	11.526	17.289
11¼	.305	.882	.763	.645	.526	.289
12½	.305	.881	.763	.644	.526	.289
15	.305	.881	.763	.644	.526	.289
17½	.305	.881	.763	.644	.526	.288
18¾	.305	.881	.763	.644	.526	.288
20	2.305	2.881	5.763	8.644	11.525	17.288
22½	.305	.881	.763	.644	.525	.288
25	.305	.881	.763	.644	.525	.288
26¼	.305	.881	.762	.644	.525	.287
27½	.305	.881	.762	.644	.525	.287
30	2.305	2.881	5.762	8.643	11.525	17.287
32½	.305	.881	.762	.643	.524	.287
33¾	.305	.881	.762	.643	.524	.286
35	.305	.881	.762	.643	.524	.286
37½	.305	.881	.762	.643	.524	.286
40	2.305	2.881	5.762	8.643	11.524	17.286
41¼	.305	.881	.762	.643	.524	.285
42½	.305	.881	.762	.643	.523	.285
45	.305	.881	.762	.642	.523	.285
47½	.305	.881	.761	.642	.523	.284
48¾	.305	.881	.761	.642	.523	.284
50	2.305	2.881	5.761	8.642	11.523	17.284
52½	.304	.881	.761	.642	.522	.284
55	.304	.881	.761	.642	.522	.283
56¼	.304	.881	.761	.642	.522	.283
57½	.304	.880	.761	.641	.522	.283
00	2.304	2.880	5.761	8.641	11.522	17.282

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 0°	1¼	2.863	0.000
	2½	5.725	.000
	3¾	8.588	.000
	5	11.450	.000
	6¼	14.313	.000
	7½	17.176	.000
	10	22.901	.000
	12½	28.626	.000
	15	34.352	.000
For latitute 1°	1¼	2.863	0.000
	2½	5.725	.000
	3¾	8.588	.000
	5	11.451	.000
	6¼	14.313	.000
	7½	17.176	.000
	10	22.901	.001
	12½	28.626	.001
	15	34.352	.001
For latitude 2°	1¼	2.863	0.000
	2½	5.725	.000
	3¾	8.588	.000
	5	11.451	.000
	6¼	14.313	.000
	7½	17.176	.001
	10	22.901	.001
	12½	28.627	.002
	15	34.352	.003

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
2 00	2.304	2.880	5.761	8.641	11.522	17.282
02½	.304	.880	.761	.641	.521	.282
03¾	.304	.880	.761	.641	.521	.282
05	.304	.880	.760	.641	.521	.281
07½	.304	.880	.760	.640	.521	.281
10	2.304	2.880	5.760	8.640	11.520	17.281
11¼	.304	.880	.760	.640	.520	.280
12½	.304	.880	.760	.640	.520	.280
15	.304	.880	.760	.640	.520	.280
17½	.304	.880	.760	.640	.519	.279
18¾	.304	.880	.760	.639	.519	.279
20	2.304	2.880	5.760	8.639	11.519	17.279
22½	.304	.880	.759	.639	.519	.278
25	.304	.880	.759	.639	.518	.278
26¼	.304	.880	.759	.639	.518	.277
27½	.304	.880	.759	.639	.518	.277
30	2.304	2.879	5.759	8.638	11.518	17.276
32½	.303	.879	.759	.638	.517	.276
33¾	.303	.879	.759	.638	.517	.276
35	.303	.879	.758	.638	.517	.275
37½	.303	.879	.758	.637	.516	.275
40	2.303	2.879	5.758	8.637	11.516	17.274
41¼	.303	.879	.758	.637	.516	.274
42½	.303	.879	.758	.637	.516	.274
45	.303	.879	.758	.637	.515	.273
47½	.303	.879	.757	.636	.515	.272
48¾	.303	.879	.757	.636	.515	.272
50	2.303	2.879	5.757	8.636	11.515	17.272
52½	.303	.879	.757	.636	.514	.271
55	.303	.878	.757	.635	.514	.271
56¼	.303	.878	.757	.635	.513	.270
57½	.303	.878	.757	.635	.513	.270
3 00	2.303	2.878	5.756	8.635	11.513	17.269
02½	.302	.878	.756	.634	.512	.269
03¾	.302	.878	.756	.634	.512	.268
05	.302	.878	.756	.634	.512	.268
07½	.302	.878	.756	.634	.512	.267
10	2.302	2.878	5.756	8.633	11.511	17.267
11¼	.302	.878	.755	.633	.511	.266
12½	.302	.878	.755	.633	.511	.266
15	.302	.878	.755	.633	.510	.265
17½	.302	.877	.755	.632	.510	.264
18¾	.302	.877	.755	.632	.509	.264
20	2.302	2.877	5.755	8.632	11.509	17.264
22½	.302	.877	.754	.632	.509	.263
25	.302	.877	.754	.631	.508	.262
26¼	.302	.877	.754	.631	.508	.262
27½	.302	.877	.754	.631	.508	.262
30	2.301	2.877	5.754	8.630	11.507	17.261
32½	.301	.877	.753	.630	.507	.260
33¾	.301	.877	.753	.630	.506	.260
35	.301	.877	.753	.630	.506	.259
37½	.301	.876	.753	.629	.506	.258
40	2.301	2.876	5.753	8.629	11.505	17.258
41¼	.301	.876	.752	.629	.505	.257
42½	.301	.876	.752	.628	.505	.257
45	.301	.876	.752	.628	.504	.256
47½	.301	.876	.752	.628	.503	.255
48¾	.301	.876	.752	.627	.503	.255
50	2.301	2.876	5.751	8.627	11.503	17.254
52½	.300	.876	.751	.627	.502	.254
55	.300	.875	.751	.626	.502	.253
56¼	.300	.875	.751	.626	.502	.252
57½	.300	.875	.751	.626	.501	.252
4 00	2.300	2.875	5.750	8.625	11.501	17.251

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 2°	1¼	2.863	0.000
	2½	5.725	.000
	3¾	8.588	.000
	5	11.451	.000
	6¼	14.313	.000
	7½	17.176	.001
	10	22.901	.001
	12½	28.627	.002
	15	34.352	.003
For latitude 3°	1¼	2.863	0.000
	2½	5.725	.000
	3¾	8.588	.000
	5	11.451	.000
	6¼	14.314	.001
	7½	17.176	.001
	10	22.902	.002
	12½	28.627	.003
	15	34.353	.004
For latitude 4°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.588	.000
	5	11.451	.001
	6¼	14.314	.001
	7½	17.177	.001
	10	22.902	.002
	12½	28.628	.004
	15	34.353	.005

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1:31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
4 00	2.300	2.875	5.750	8.625	11.501	17.251
02½	.300	.875	.750	.625	.500	.250
03¾	.300	.875	.750	.625	.500	.250
05	.300	.875	.750	.625	.500	.249
07½	.300	.875	.749	.624	.499	.248
10	2.300	2.875	5.749	8.624	11.498	17.247
11¼	.300	.875	.749	.624	.498	.247
12½	.300	.874	.749	.623	.498	.247
15	.299	.874	.749	.623	.497	.246
17½	.299	.874	.748	.622	.496	.245
18¾	.299	.874	.748	.622	.496	.244
20	2.299	2.874	5.748	8.622	11.496	17.244
22½	.299	.874	.748	.621	.495	.243
25	.299	.874	.747	.621	.495	.242
26¼	.299	.874	.747	.621	.494	.241
27½	.299	.873	.747	.620	.494	.241
30	2.299	2.873	5.747	8.620	11.493	17.240
32½	.299	.873	.746	.619	.493	.239
33¾	.299	.873	.746	.619	.492	.238
35	.298	.873	.746	.619	.492	.238
37½	.298	.873	.746	.618	.491	.237
40	2.298	2.873	5.745	8.618	11.491	17.236
41¼	.298	.873	.745	.618	.490	.235
42½	.298	.872	.745	.617	.490	.235
45	.298	.872	.745	.617	.489	.234
47½	.298	.872	.744	.616	.489	.233
48¾	.298	.872	.744	.616	.488	.232
50	2.298	2.872	5.744	8.616	11.488	17.232
52½	.297	.872	.744	.615	.487	.231
55	.297	.872	.743	.615	.486	.230
56¼	.297	.872	.743	.615	.486	.229
57½	.297	.871	.743	.614	.486	.229
5 00	2.297	2.871	5.742	8.614	11.485	17.227
02½	.297	.871	.742	.613	.484	.226
03¾	.297	.871	.742	.613	.484	.226
05	.297	.871	.742	.613	.484	.225
07½	.297	.871	.741	.612	.483	.224
10	2.296	2.871	5.741	8.612	11.482	17.223
11¼	.296	.870	.741	.611	.482	.222
12½	.296	.870	.741	.611	.481	.222
15	.296	.870	.740	.610	.480	.221
17½	.296	.870	.740	.610	.480	.220
18¾	.296	.870	.740	.609	.479	.219
20	2.296	2.870	5.739	8.609	11.479	17.218
22½	.296	.870	.739	.609	.478	.217
25	.295	.869	.739	.608	.477	.216
26¼	.295	.869	.738	.608	.477	.215
27½	.295	.869	.738	607	.477	.215
30	2.295	2.869	5.738	8.607	11.476	17.214
32½	.295	.869	.738	.606	.475	.213
33¾	.295	.869	.737	.606	.475	.212
35	.295	.869	.737	.606	.474	.211
37½	.295	.868	.737	.605	.473	.210
40	2.294	2.868	5.736	8.604	11.473	17.209
41¼	.294	.868	.736	.604	.472	.208
42½	.294	.868	.736	.604	.472	.208
45	.294	.868	.735	.603	.471	.206
47½	.294	.868	.735	.603	.470	.205
48¾	.294	.867	.735	.602	.470	.204
50	2.294	2.867	5.735	8.602	11.469	17.204
52½	.294	.867	.734	.601	.468	.203
55	.293	.867	.734	.601	.468	.201
56¼	.293	.867	.734	.600	.467	.201
57½	.293	.867	.733	.600	.467	.200
00	2.293	2.866	5.733	8.599	11.466	17.199

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 4°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.588	.000
	5	11.451	.001
	6¼	14.314	.001
	7½	17.177	.001
	10	22.902	.002
	12½	28.628	.004
	15	34.353	.005
For latitude 5°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.589	.000
	5	11.451	.001
	6¼	14.314	.001
	7½	17.177	.002
	10	22.903	.003
	12½	28.629	.005
	15	34.354	.007
For latitude 6°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.589	.000
	5	11.452	.001
	6¼	14.315	.001
	7½	17.178	.002
	10	22.904	.003
	12½	28.630	.005
	15	34.356	.008

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1:31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
6 00	2.293	2.866	5.733	8.599	11.466	17.199
02½	.293	.866	.732	.599	.465	.197
03¾	.293	.866	.732	.598	.464	.197
05	.293	.866	.732	.598	.464	.196
07½	.293	.866	.732	.597	.463	.195
10	2.292	2.866	5.731	8.597	11.462	17.193
11¼	.292	.865	.731	.596	.462	.193
12½	.292	.865	.731	.596	.461	.192
15	.292	.865	.730	.595	.460	.191
17½	.292	.865	.730	.595	.460	.189
18¾	.292	.865	.730	.594	.459	.189
20	2.292	2.865	5.729	8.594	11.459	17.188
22½	.292	.864	.729	.593	.458	.187
25	.291	.864	.728	.593	.457	.185
26¼	.291	.864	.728	.592	.456	.185
27½	.291	.864	.728	.592	.456	.184
30	2.291	5.864	5.727	8.591	11.455	17.182
32½	.291	.863	.727	.590	.454	.181
33¾	.291	.863	.727	.590	.453	.180
35	.291	.863	.727	.590	.453	.180
37½	.290	.863	.726	.589	.452	.178
40	2.290	2.863	5.726	8.588	11.451	17.177
41¼	.290	.863	.725	.588	.451	.176
42½	.290	.863	.725	.588	.450	.175
45	.290	.862	.725	.587	.449	.174
47½	.290	.862	.724	.586	.448	.172
48¾	.290	.862	.724	.586	.448	.172
50	2.289	2.862	5.724	8.585	11.447	17.171
52½	.289	.862	.723	.585	.446	.169
55	.289	.861	.723	.584	.445	.168
56¼	.289	.861	.722	.583	.445	.167
57½	.289	.861	.722	.583	.444	.166
7 00	2.289	2.861	5.722	8.582	11.443	17.165
02½	.288	.861	.721	.582	.442	.163
03¾	.288	.860	.721	.581	.442	.162
05	.288	.860	.721	.581	.441	.162
07½	.288	.860	.720	.580	.440	.160
10	2.288	2.860	5.720	8.579	11.439	17.159
11¼	.288	.860	.719	.579	.439	.158
12½	.288	.859	.719	.578	.438	.157
15	.287	.859	.718	.578	.437	.156
17½	.287	.859	.718	.577	.436	.154
18¾	.287	.859	.718	.577	.435	.153
20	2.287	2.859	5.717	8.576	11.435	17.152
22½	.287	.858	.717	.575	.434	.151
25	.287	.858	.716	.575	.433	.149
26¼	.286	.858	.716	.574	.432	.148
27½	.286	.858	.716	.574	.432	.147
30	2.286	2.858	5.715	8.573	11.431	17.146
32½	.286	.857	.715	.572	.429	.144
33¾	.286	.857	.714	.572	.429	.143
35	.286	.857	.714	.571	.428	.143
37½	.285	.857	.714	.570	.427	.141
40	2.285	2.857	5.713	8.570	11.426	17.139
41¼	.285	.856	.713	.569	.426	.138
42½	.285	.856	.713	.569	.425	.138
45	.285	.856	.712	.568	.424	.136
47½	.285	.856	.711	.567	.423	.134
48¾	.284	.856	.711	.567	.422	.133
50	2.284	2.855	5.711	8.566	11.422	17.133
52½	.284	.855	.710	.565	.421	.131
55	.284	.855	.710	.565	.419	.129
56¼	.284	.855	.709	.564	.419	.128
57½	.284	.855	.709	.564	.418	.127
8 00	2.284	2.854	5.709	8.563	11.417	17.126

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 6°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.589	.000
	5	11.452	.001
	6¼	14.315	.001
	7½	17.178	.002
	10	22.904	.003
	12½	28.630	.005
	15	34.356	.008
For latitude 7°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.589	.001
	5	11.452	.001
	6¼	14.315	.002
	7½	17.179	.002
	10	22.905	.004
	12½	28.631	.006
	15	34.357	.009
For latitude 8°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.590	.001
	5	11.453	.001
	6¼	14.316	.002
	7½	17.179	.003
	10	22.906	.005
	12½	28.632	.007
	15	34.359	.010

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
8 00	2.284	2.854	5.709	8.563	11.417	17.126
02½	.283	.854	.708	.562	.416	.124
03¾	.283	.854	.708	.561	.415	.123
05	.283	.854	.707	.561	.415	.122
07½	.283	.853	.707	.560	.414	.120
10	2.283	2.853	5.706	8.559	11.412	17.119
11¼	.282	.853	.706	.559	.412	.118
12½	.282	.853	.706	.558	.411	.117
15	.282	.853	.705	.558	.410	.115
17½	.282	.852	.704	.557	.409	.113
18¾	.282	.852	.704	.556	.408	.112
20	2.282	2.852	5.704	8.556	11.408	17.111
22½	.282	.852	.703	.555	.406	.110
25	.282	.851	.703	.554	.405	.108
26¼	.282	.851	.702	.553	.405	.107
27½	.282	.851	.702	.553	.404	.106
30	2.281	2.851	5.701	8.552	11.403	17.104
32½	.280	.850	.701	.551	.402	.102
33¾	.280	.850	.700	.551	.401	.101
35	.280	.850	.700	.550	.400	.100
37½	.280	.850	.699	.549	.399	.099
40	2.280	2.849	5.699	8.548	11.398	17.097
41¼	.279	.849	.699	.548	.397	.096
42½	.279	.849	.698	.547	.397	.095
45	.279	.849	.698	.546	.395	.093
47½	.279	.848	.697	.545	.394	.091
48¾	.279	.848	.697	.545	.393	.090
50	2.279	2.848	5.696	8.545	11.393	17.089
52½	.278	.848	.696	.544	.391	.087
55	.278	.848	.695	.543	.390	.085
56¼	.278	.847	.695	.542	.389	.084
57½	.278	.847	.694	.542	.389	.083
9 00	2.278	2.847	5.694	8.541	11.388	17.081
02½	.277	.847	.693	.540	.386	.079
03¾	.277	.846	.693	.539	.386	.078
05	.277	.846	.692	.539	.385	.077
07½	.277	.846	.692	.538	.384	.075
10	2.276	2.846	5.691	8.537	11.382	17.073
11¼	.276	.845	.691	.536	.382	.072
12½	.276	.845	.690	.536	.381	.071
15	.276	.845	.690	.535	.380	.069
17½	.276	.845	.689	.534	.378	.067
18¾	.275	.844	.689	.533	.378	.066
20	2.275	2.844	5.688	8.533	11.377	17.065
22½	.275	.844	.688	.532	.376	.063
25	.275	.844	.687	.531	.374	.061
26¼	.275	.843	.687	.530	.373	.060
27½	.275	.843	.686	.530	.373	.059
30	2.274	2.843	5.686	8.529	11.371	17.057
32½	.274	.843	.685	.528	.370	.055
33¾	.274	.842	.685	.527	.369	.054
35	.274	.842	.684	.527	.369	.053
37½	.273	.842	.684	.526	.367	.051
40	2.273	2.841	5.683	8.524	11.366	17.049
41¼	.273	.841	.683	.524	.365	.048
42½	.273	.841	.682	.523	.365	.047
45	.273	.841	.682	.522	.363	.045
47½	.272	.840	.681	.521	.362	.043
48¾	.272	.840	.680	.521	.361	.041
50	2.272	2.840	5.680	8.520	11.360	17.040
52½	.272	.840	.679	.519	.359	.038
55	.271	.839	.679	.518	.357	.036
56¼	.271	.839	.678	.518	.357	.035
57½	.271	.839	.678	.517	.356	.034
00	2.271	2.839	5.677	8.516	11.355	17.032

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 8°	1¼	2.863	0.000
	2½	5.726	.000
	3¾	8.590	.001
	5	11.453	.001
	6¼	14.316	.002
	7½	17.179	.003
	10	22.906	.005
	12½	28.632	.007
	15	34.359	.010
For latitude 9°	1¼	2.863	0.000
	2½	5.727	.000
	3¾	8.590	.001
	5	11.453	.001
	6¼	14.317	.002
	7½	17.180	.003
	10	22.907	.005
	12½	28.634	.008
	15	34.360	.012
For latitude 10°	1¼	2.864	0.000
	2½	5.727	.000
	3¾	8.591	.001
	5	11.454	.001
	6¼	14.318	.002
	7½	17.181	.003
	10	22.908	.006
	12½	28.635	.009
	15	34.362	.013

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
10	00	2.271	2.839	5.677	8.516	11.355	17.032
	02½	.271	.838	.677	.515	.353	.030
	03¾	.270	.838	.676	.514	.353	.029
	05	.270	.838	.676	.514	.352	.027
	07½	.270	.838	.675	.513	.350	.025
	10	2.270	2.837	5.674	8.512	11.349	17.023
	11¼	.270	.837	.674	.511	.348	.022
	12½	.269	.837	.674	.510	.347	.021
	15	.269	.836	.673	.509	.346	.019
	17½	.269	.836	.672	.508	.344	.016
	18¾	.269	.836	.672	.508	.344	.115
	20	2.269	2.836	5.671	8.507	11.343	17.014
	22½	.268	.835	.671	.506	.341	.012
	25	.268	.835	.670	.505	.340	.010
	26¼	.268	.835	.670	.504	.339	.009
	27½	.268	.835	.669	.504	.338	.007
	30	2.267	2.834	5.668	8.503	11.337	17.005
	32½	.267	.834	.668	.501	.335	.003
	33¾	.267	.834	.667	.501	.334	.002
	35	.267	.833	.667	.500	.334	.001
	37½	.266	.833	.666	.499	.332	16.998
	40	2.266	2.833	5.665	8.498	11.331	16.996
	41¼	.266	.832	.665	.497	.330	.995
	42½	.266	.832	.665	.497	.329	.994
	45	.266	.832	.664	.496	.328	.991
	47½	.265	.832	.663	.495	.326	.989
	48¾	.265	.831	.663	.494	.325	.988
	50	2.265	2.831	5.662	8.493	11.324	16.987
	52½	.265	.831	.661	.492	.323	.984
	55	.264	.830	.661	.491	.321	.982
	56¼	.264	.830	.660	.490	.320	.981
	57½	.264	.830	.660	.490	.320	.980
11	00	2.264	2.830	5.659	8.489	11.318	16.977
	02½	.263	.829	.658	.487	.317	.975
	03¾	.263	.829	.658	.487	.316	.974
	05	.263	.829	.657	.486	.315	.972
	07½	.263	.828	.657	.485	.313	.970
	10	2.262	2.828	5.656	8.484	11.312	16.968
	11¼	.262	.828	.655	.483	.311	.966
	12½	.262	.828	.655	.483	.310	.965
	15	.262	.827	.654	.481	.308	.963
	17½	.261	.827	.653	.480	.307	.960
	18¾	.261	.827	.653	.480	.306	.959
	20	2.261	2.826	5.653	8.479	11.305	16.958
	22½	.261	.826	.652	.478	.304	.955
	25	.260	.825	.651	.476	.302	.953
	26¼	.260	.825	.651	.476	.301	.952
	27½	.260	.825	.650	.475	.300	.950
	30	2.260	2.825	5.649	8.474	11.299	16.948
	32½	.259	.824	.648	.473	.297	.945
	33¾	.259	.824	.648	.472	.296	.944
	35	.259	.824	.648	.471	.295	.943
	37½	.259	.823	.647	.470	.294	.940
	40	2.258	2.823	5.646	8.469	11.292	16.938
	41¼	.258	.823	.646	.468	.291	.937
	42½	.258	.823	.645	.468	.290	.935
	45	.258	.822	.644	.466	.289	.933
	47½	.257	.822	.643	.465	.287	.930
	48¾	.257	.822	.643	.465	.286	.929
	50	2.257	2.821	5.643	8.464	11.285	16.928
	52½	.257	.821	.642	.463	.283	.925
	55	.256	.820	.641	.461	.282	.923
	56¼	.256	.820	.640	.461	.281	.921
	57½	.256	.820	.640	.460	.280	.920
12	00	2.256	2.820	5.639	8.459	11.278	16.917

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 10°	1¼	2.864	0.000
	2½	5.727	.000
	3¾	8.591	.001
	5	11.454	.001
	6¼	14.318	.002
	7½	17.181	.003
	10	22.908	.006
	12½	28.635	.009
	15	34.362	.013
For latitude 11°	1¼	2.864	0.000
	2½	5.727	.000
	3¾	8.591	.001
	5	11.455	.002
	6¼	14.319	.002
	7½	17.182	.004
	10	22.910	.006
	12½	28.637	.010
	15	34.365	.014
For latitude 12°	1¼	2.864	0.000
	2½	5.728	.000
	3¾	8.592	.001
	5	11.456	.002
	6¼	14.320	.003
	7½	17.183	.004
	10	22.911	.007
	12½	28.639	.011
	15	34.367	.015

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
12 00	2.256	2.820	5.639	8.459	11.278	16.917
02½	.255	.819	.638	.457	.276	.915
03¾	.255	.819	.638	.457	.276	.913
05	.255	.819	.637	.456	.275	.912
07½	.255	.818	.637	.455	.273	.910
10	2.254	2.818	5.636	8.453	11.271	16.907
11¼	.254	.818	.635	.453	.270	.906
12½	.254	.817	.635	.452	.270	.904
15	.254	.817	.634	.451	.268	.902
17½	.253	.816	.633	.449	.266	.899
18¾	.253	.816	.633	.449	.265	.898
20	2.253	2.816	5.632	8.448	11.264	16.896
22½	.252	.816	.631	.447	.262	.894
25	.252	.815	.630	.445	.261	.891
26¼	.252	.815	.630	.445	.260	.890
27½	.252	.815	.629	.444	.259	.888
30	2.251	2.814	5.629	8.443	11.257	16.886
32½	.251	.814	.628	.441	.255	.883
33¾	.251	.814	.627	.441	.254	.881
35	.251	.813	.627	.440	.253	.880
37½	.250	.813	.626	.439	.252	.877
40	2.250	2.812	5.625	8.437	11.250	16.875
41¼	.250	.812	.624	.437	.249	.873
42½	.250	.812	.624	.436	.248	.872
45	.249	.812	.623	.435	.246	.869
47½	.249	.811	.622	.433	.244	.866
48¾	.249	.811	.622	.433	.243	.865
50	2.248	2.811	5.621	8.432	11.242	16.864
52½	.248	.810	.620	.430	.241	.861
55	.248	.810	.619	.429	.239	.858
56¼	.248	.809	.619	.428	.238	.857
57½	.247	.809	.618	.428	.237	.855
13 00	2.247	2.809	5.618	8.426	11.235	16.852
02½	.247	.808	.617	.425	.233	.850
03¾	.246	.808	.616	.424	.232	.848
05	.246	.808	.616	.423	.231	.847
07½	.246	.807	.615	.422	.229	.844
10	2.246	2.807	5.614	8.421	11.227	16.841
11¼	.245	.807	.613	.420	.226	.840
12½	.245	.806	.613	.419	.226	.838
15	.245	.806	.612	.418	.224	.835
17½	.244	.805	.611	.416	.222	.833
18¾	.244	.805	.610	.416	.221	.831
20	2.244	2.805	5.610	8.415	11.220	16.830
22½	.244	.804	.609	.413	.218	.827
25	.243	.804	.608	.412	.216	.824
26¼	.243	.804	.608	.411	.215	.823
27½	.243	.804	.607	.411	.214	.821
30	2.242	2.803	5,606	8.409	11.212	16.818
32½	.242	.803	.605	.408	.210	.815
33¾	.242	.802	.605	.407	.209	.814
35	.242	.802	.604	.406	.208	.812
37½	.241	.802	.603	.405	.206	.809
40	2.241	2.801	5.602	8.403	11.204	16.806
41¼	.241	.801	.602	.402	.203	.805
42½	.240	.801	.601	.402	.202	.803
45	.240	.800	.600	.400	.200	.800
47½	.240	.800	.599	.399	.198	.797
48¾	.239	.799	.599	.398	.197	.796
50	2.239	2.799	5.598	8.397	11.196	16.795
52½	.239	.799	.597	.396	.194	.792
55	.238	.798	.596	.394	.192	.789
56¼	.238	.798	.596	.394	.191	.787
57½	.238	.798	.595	.393	.190	.786
14 00	2.238	2.797	5.594	8.391	11.188	16.782

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 12°	1¼	2.864	0.000
	2½	5.728	.000
	3¾	8.592	.001
	5	11.456	.002
	6¼	14.320	.003
	7½	17.183	.004
	10	22.911	.007
	12½	28, 639	.011
	15	34.367	.015
For latitude 13°	1¼	2.864	0.000
	2½	5.728	.000
	3¾	8.592	.001
	5	11.456	.002
	6¼	14.321	.003
	7½	17.185	.004
	10	22.913	.007
	12½	28.641	.011
	15	34.370	.017
For latitude 14°	1¼	2.864	0.000
	2½	5.729	.000
	3¾	8.593	.001
	5	11.457	.002
	6¼	14.322	.003
	7½	17.186	.004
	10	22.915	.008
	12½	28.644	.012
	15	34.372	.018

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
14	00	2.238	2.797	5.594	8.391	11.188	16.782
	02½	.237	.797	.593	.390	.186	.780
	03¾	.237	.796	.593	.389	.185	.778
	05	.237	.796	.592	.388	.184	.776
	07½	.236	.796	.591	.387	.182	.773
	10	2.236	2.795	5.590	8.385	11.180	16.770
	11¼	.236	.795	.590	.384	.179	.769
	12½	.236	.795	.589	.384	.178	.767
	15	.235	.794	.588	.382	.176	.764
	17½	.235	.794	.587	.381	.174	.761
	18¾	.235	.793	.587	.380	.173	.760
	20	2.234	2.793	5.586	8.379	11.172	16.758
	22½	.234	.792	.585	.377	.170	.755
	25	.234	.792	.584	.376	.168	.752
	26¼	.233	.792	.583	.375	.167	.750
	27½	.233	.791	.583	.374	.166	.749
	30	2.233	2.791	5.582	8.373	11.164	16.745
	32½	.232	.790	.581	.371	.162	.742
	33¾	.232	.790	.580	.370	.161	.741
	35	.232	.790	.580	.370	.160	.739
	37½	.232	.789	.579	.368	.157	.736
	40	2.231	2.789	5.578	8.366	11.155	16.733
	41¼	.231	.789	.577	.366	.154	.731
	42½	.231	.788	.577	.365	.153	.730
	45	.230	.788	.576	.363	.151	.727
	47½	.230	.787	.574	.362	.149	.723
	48¾	.230	.787	.574	.361	.148	.722
	50	2.229	2.787	5.573	8.360	11.147	16.720
	52½	.229	.786	.572	.359	.145	.717
	55	.229	.786	.571	.357	.143	.714
	56¼	.228	.785	.571	.356	.141	.712
	57½	.228	.785	.570	.355	.140	.711
15	00	2.228	2.785	5.569	8.354	11.138	16.707
	02½	.227	.784	.568	.352	.136	.704
	03¾	.227	.784	.568	.351	.135	.703
	05	.227	.783	.567	.350	.134	.701
	07½	.226	.783	.566	.349	.132	.698
	10	2.226	2.782	5.565	8.347	11.130	16.694
	11¼	.226	.782	.564	.346	.129	.693
	12½	.225	.782	.564	.346	.127	.691
	15	.225	.781	.563	.344	.125	.688
	17½	.225	.781	.562	.342	.123	.685
	18¾	.224	.780	.561	.341	.122	.683
	20	2.224	2.780	5.560	8.341	11.121	16.681
	22½	.224	.780	.559	.339	.119	.678
	25	.224	.779	.558	.337	.116	.675
	26¼	.223	.779	.558	.336	.115	.673
	27½	.223	.779	.557	.336	.114	.671
	30	2.222	2.778	5.556	8.334	11.112	16.668
	32½	.222	.777	.555	.332	.110	.665
	33¾	.222	.777	.554	.331	.109	.663
	35	.222	.777	.554	.331	.107	.661
	37½	.221	.776	.553	.329	.105	.658
	40	2.221	2.776	5.552	8.327	11.103	16.654
	41¼	.220	.775	.551	.326	.102	.653
	42½	.220	.775	.550	.326	.101	.651
	45	.220	.775	.549	.324	.098	.648
	47½	.219	.774	.548	.322	.096	.644
	48¾	.219	.774	.548	.321	.095	.643
	50	2.219	2.773	5.547	8.320	11.094	16.641
	52½	.218	.773	.546	.319	.092	.637
	55	.218	.772	.545	.317	.089	.634
	56¼	.218	.772	.544	.316	.088	.632
	57½	.217	.772	.544	.315	.087	.631
16	00	2.217	2.771	5.542	8.314	11.085	16.627

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 14°	1¼	2.864	0.000
	2½	5.729	.000
	3¾	8.593	.001
	5	11.457	.002
	6¼	14.322	.003
	7½	17.186	.004
	10	22.915	.008
	12½	28.644	.012
	15	34.372	.018
For latitude 15°	1¼	2.865	0.000
	2½	5.729	.001
	3¾	8.594	.001
	5	11.458	.002
	6¼	14.323	.003
	7½	17.188	.005
	10	22.917	.008
	12½	28.646	.013
	15	34.375	.019
For latitude 16°	1¼	2.865	0.000
	2½	5.730	.001
	3¾	8.595	.001
	5	11.459	.002
	6¼	14.325	.003
	7½	17.189	.005
	10	22.919	.009
	12½	28.649	.014
	15	34.379	.020

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
16	00	2.217	2.771	5.542	8.314	11.085	16.627
	02½	.216	.771	.541	.312	.083	.624
	03¾	.216	.770	.541	.311	.081	.622
	05	.216	.770	.540	.310	.080	.620
	07½	.216	.769	.539	.308	.078	.617
	10	2.215	2.769	5.538	8.307	11.076	16.613
	11¼	.215	.769	.537	.306	.074	.612
	12½	.215	.768	.537	.305	.073	.610
	15	.214	.768	.535	.303	.071	.606
	17½	.214	.767	.534	.301	.069	.603
	18¾	.213	.767	.534	.301	.067	.601
	20	2.213	2.767	5.533	8.300	11.066	16.599
	22½	.213	.766	.532	.298	.064	.596
	25	.212	.765	.531	.296	.062	.592
	26¼	.212	.765	.530	.295	.060	.590
	27½	.212	.765	.530	.294	.059	.589
	30	2.211	2.764	5.528	8.293	11.057	16.585
	32½	.211	.764	.527	.291	.054	.582
	33¾	.211	.763	.527	.290	.053	.580
	35	.210	.763	.526	.289	.052	.578
	37½	.210	.762	.525	.287	.050	.575
	40	2.209	2.762	5.524	8.286	11.047	16.571
	41¼	.209	.762	.523	.285	.046	.569
	42½	.209	.761	.522	.284	.045	.567
	45	.208	.761	.521	.282	.043	.564
	47½	.208	.760	.520	.280	.040	.560
	48¾	.208	.760	.519	.279	.039	.558
	50	2.208	2.759	5.519	8.278	11.038	16.557
	52½	.207	.759	.518	.276	.035	.553
	55	.207	.758	.516	.275	.033	.549
	56¼	.206	.758	.516	.274	.032	.547
	57½	.206	.758	.515	.273	.030	.546
17	00	2.206	2.757	5.514	8.271	11.028	16.542
	02½	.205	.756	.513	.269	.026	.538
	03¾	.205	.756	.512	.268	.024	.536
	05	.205	.756	.512	.267	.023	.535
	07½	.204	.755	.510	.266	.021	.531
	10	2.204	2.755	5.509	8.264	11.018	16.527
	11¼	.203	.754	.509	.263	.017	.526
	12½	.203	.754	.508	.262	.016	.524
	15	.203	.753	.507	.260	.013	.520
	17½	.202	.753	.505	.258	.011	.516
	18¾	.202	.752	.505	.257	.010	.514
	20	2.202	2.752	5.504	8.256	11.008	16.512
	22½	.201	.751	.503	.254	.006	.509
	25	.201	.751	.502	.253	.003	.505
	26¼	.200	.751	.501	.252	.002	.503
	27½	.200	.750	.500	.251	.001	.501
	30	2.200	2.750	5.499	8.249	10.998	16.498
	32½	.199	.749	.498	.247	.996	.494
	33¾	.199	.749	.497	.246	.995	.492
	35	.199	.748	.497	.245	.993	.490
	37½	.198	.748	.495	.243	.991	.486
	40	2.198	2.747	5.494	8.241	10.988	16.482
	41¼	.197	.747	.494	.240	.987	.481
	42½	.197	.746	.493	.239	.986	.479
	45	.197	.746	.492	.237	.983	.475
	47½	.196	.745	.490	.235	.981	.471
	48¾	.196	.745	.490	.235	.979	.469
	50	2.196	2.745	5.489	8.234	10.978	16.467
	52½	.195	.744	.488	.232	.976	.463
	55	.195	.743	.486	.230	.973	.459
	56¼	.194	.743	.486	.229	.972	.458
	57½	.194	.743	.485	.228	.970	.456
8	00	2.194	2.742	5.484	8.226	10.968	16.452

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 16°	1¼	2.865	0.000
	2½	5.730	.001
	3¾	8.595	.001
	5	11.459	.002
	6¼	14.325	.003
	7½	17.189	.005
	10	22.919	.009
	12½	28.649	.014
	15	34.379	.020
For latitude 17°	1¼	2.865	0.000
	2½	5.730	.001
	3¾	8.595	.001
	5	11.461	.002
	6¼	14.326	.004
	7½	17.191	.005
	10	22.921	.009
	12½	28.652	.014
	15	34.382	.021
For latitude 18°	1¼	2.865	0.000
	2½	5.731	.001
	3¾	8.596	.001
	5	11.462	.002
	6¼	14.327	.004
	7½	17.193	.006
	10	22.923	.010
	12½	28.654	.015
	15	34.385	.022

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
18	00	2. 194	2. 742	5. 484	8. 226	10. 968	16. 452
	02½	. 193	. 741	. 483	. 224	. 965	. 448
	03¾	. 193	. 741	. 482	. 223	. 964	. 446
	05	. 193	. 741	. 481	. 222	. 963	. 444
	07½	. 192	. 740	. 480	. 220	. 960	. 440
	10	2. 191	2. 739	5. 479	8. 218	10. 958	16. 436
	11¼	. 191	. 739	. 478	. 217	. 956	. 434
	12½	. 191	. 739	. 477	. 216	. 955	. 432
	15	. 190	. 738	. 476	. 214	. 952	. 428
	17½	. 190	. 737	. 475	. 212	. 950	. 424
	18¾	. 190	. 737	. 474	. 211	. 948	. 423
	20	2. 189	2. 737	5. 474	8. 210	10. 947	16. 421
	22½	. 189	. 736	. 472	. 208	. 944	. 417
	25	. 188	. 735	. 471	. 206	. 942	413
	26¼	. 188	. 735	. 470	. 205	. 941	. 411
	27½	. 188	. 735	. 470	. 204	. 939	. 409
	30	2. 187	2. 734	5. 468	8. 202	10. 937	16. 405
	32½	. 187	. 733	. 467	. 200	. 934	. 401
	33¾	. 187	. 733	. 466	. 199	. 933	. 399
	35	. 186	. 733	. 466	. 198	. 931	. 397
	37½	. 186	. 732	. 464	. 196	. 929	. 393
	40	2. 185	2. 731	5. 463	8. 194	10. 926	16. 389
	41¼	. 185	. 731	. 462	. 193	. 925	. 387
	42½	. 185	. 731	. 462	. 192	. 923	. 385
	45	. 184	. 730	. 460	. 190	. 921	. 381
	47½	. 184	. 729	. 459	. 188	. 918	. 377
	48¾	. 183	. 729	. 458	. 187	. 917	. 375
	50	2. 183	2. 729	5. 458	8. 186	10. 915	16. 373
	52½	. 183	. 728	. 456	. 184	. 913	. 369
	55	. 182	. 727	. 455	. 182	. 910	. 365
	56¼	. 182	. 727	. 454	. 181	. 908	. 363
	57½	. 181	. 727	. 454	. 180	. 907	. 361
19	00	2. 181	2. 726	5. 452	8. 178	10. 904	16. 357
	02½	. 180	. 725	. 451	. 176	. 902	. 353
	03¾	. 180	. 725	. 450	. 175	. 900	. 350
	05	. 180	. 725	. 449	. 174	. 899	. 348
	07½	. 179	. 724	. 448	. 172	. 896	. 344
	10	2. 179	2. 723	5. 447	8. 170	10. 893	16. 340
	11¼	. 178	. 723	. 446	. 169	. 892	. 338
	12½	. 178	. 723	. 445	. 168	. 891	. 336
	15	. 178	. 722	. 444	. 166	. 888	. 332
	17½	. 177	. 721	. 443	. 164	. 885	. 328
	18¾	. 177	. 721	. 442	. 163	. 884	. 326
	20	2. 177	2. 721	5. 441	8. 162	10. 883	16. 324
	22½	. 176	. 720	. 440	. 160	. 880	. 320
	25	. 175	. 719	. 438	. 158	. 877	. 315
	26¼	. 175	. 719	. 438	. 157	. 876	. 313
	27½	. 175	. 719	. 437	. 156	. 874	. 311
	30	2. 174	2. 718	5. 436	8. 154	10. 871	16. 307
	32½	. 174	. 717	. 434	. 151	. 869	. 303
	33¾	. 173	. 717	. 434	. 150	. 867	. 301
	35	. 173	. 716	. 433	. 149	. 866	. 299
	37½	. 173	. 716	. 431	. 147	. 863	. 294
	40	2. 172	2. 715	5. 430	8. 145	10. 860	16. 290
	41¼	. 172	. 715	. 429	. 144	. 859	. 288
	42½	. 172	. 714	. 429	. 143	. 857	. 286
	45	. 171	. 714	. 427	. 141	. 855	. 282
	47½	. 170	. 713	426	. 139	. 852	. 278
	48¾	. 170	. 713	. 425	. 138	. 850	. 276
	50	2. 170	2. 712	5. 424	8. 137	10. 849	16. 273
	52½	. 169	. 712	. 423	. 135	. 846	. 269
	55	. 169	. 711	. 422	. 132	. 843	. 265
	56¼	. 168	. 710	. 421	. 131	. 842	. 263
	57½	. 168	. 710	. 420	. 130	. 840	. 261
20	00	2. 167	2. 709	5. 419	8. 128	10. 838	16. 256

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 18°	1¼	2. 865	0. 000
	2½	5. 731	. 001
	3¾	8. 596	. 001
	5	11. 462	. 002
	6¼	14. 327	. 004
	7½	17. 193	. 006
	10	22. 923	. 010
	12½	28. 654	. 015
	15	34. 385	. 022
For latitude 19°	1¼	2. 866	0. 000
	2½	5. 731	. 001
	3¾	8. 597	. 001
	5	11. 463	. 003
	6¼	14. 329	. 004
	7½	17. 194	. 006
	10	22. 926	. 010
	12½	28. 657	. 016
	15	34. 389	. 023
For latitude 20°	1¼	2. 866	0. 000
	2½	5. 732	. 001
	3¾	8. 598	. 002
	5	11. 464	. 003
	6¼	14. 330	. 004
	7½	17. 196	. 006
	10	22. 929	. 011
	12½	28. 661	. 017
	15	34. 393	. 024

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
20 00	2.167	2.709	5.419	8.128	10.838	16.256
02½	.167	.709	.417	.126	.835	.252
03¾	.167	.708	.417	.125	.833	.250
05	.166	.708	.416	.124	.832	.248
07½	.166	.707	.414	.122	.829	.243
10	2.165	2.707	5.413	8.120	10.826	16.239
11¼	.165	.706	.412	.119	.825	.237
12½	.165	.706	.412	.117	.823	.235
15	.164	.705	.410	.115	.820	.231
17½	.163	.704	.409	.113	.817	.226
18¾	.163	.704	.408	.112	.816	.224
20	2.163	2.704	5.407	8.111	10.815	16.222
22½	.162	.703	.406	.109	.812	.217
25	.162	.702	.404	.107	.809	.213
26¼	.161	.702	.404	.105	.807	.211
27½	.161	.701	.403	.104	.806	.209
30	2.161	2.701	5.401	8.102	10.803	16.204
32½	.160	.700	.400	.100	.800	.200
33¾	.160	.700	.399	.099	.799	.198
35	.159	.699	.399	.098	.797	.196
37½	.159	.699	.397	.096	.794	.191
40	2.158	2.698	5.396	8.093	10.791	16.187
41¼	.158	.697	.395	.092	.790	.185
42½	.158	.697	.394	.091	.788	.182
45	.157	.696	.393	.089	.785	.178
47½	.156	.696	.391	.087	.782	.174
48¾	.156	.695	.390	.086	.781	.171
50	2.156	2.695	5.390	8.085	10.779	16.169
52½	.155	.694	.388	.082	.776	.165
55	.155	.693	.387	.080	.773	.160
56¼	.154	.693	.386	.079	.772	.158
57½	.154	.693	.385	.079	.770	.156
21 00	2.154	2.692	5.384	8.076	10.768	16.151
02½	.153	.691	.382	.073	.764	.147
03¾	.153	.691	.382	.072	.763	.145
05	.152	.690	.381	.071	.762	.142
07½	.152	.690	.379	.069	.759	.138
10	2.151	2.689	5.378	8.067	10.756	16.133
11¼	.151	.688	.377	.066	.754	.131
12½	.150	.688	.376	.064	.752	.129
15	.150	.687	.375	.062	.749	.124
17½	.149	.687	.373	.060	.746	.120
18¾	.149	.686	.372	.059	.745	.117
20	2.149	2.686	5.372	8.058	10.743	16.115
22½	.148	.685	.370	.055	.740	.111
25	.147	.684	.369	.053	.737	.106
26¼	.147	.684	.368	.052	.736	.104
27½	.147	.684	.367	.051	.734	.102
30	2.146	2.683	5.366	8.048	10.731	16.097
32½	.146	.682	.364	.046	.728	.092
33¾	.145	.682	.363	.045	.727	.090
35	.145	.681	.363	.044	.725	.088
37½	.144	.681	.361	.042	.722	.083
40	2.144	2.680	5.359	8.039	10.719	16.078
41¼	.144	.679	.359	.038	.717	.076
42½	.143	.679	.358	.037	.716	.074
45	.143	.678	.356	.035	.713	.069
47½	.142	.677	.355	.032	.710	.065
48¾	.142	.677	.354	.031	.708	.062
50	2.141	2.677	5.353	8.030	10.707	16.060
52½	.141	.676	.352	.028	.703	.055
55	.140	.675	.350	.025	.700	.051
56¼	.140	.675	.349	.024	.699	.048
57½	.140	.674	.349	.023	.697	.046
22 00	2.139	2.674	5.347	8.021	10.694	16.041

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 20°	1¼	2.866	0.000
	2½	5.732	.001
	3¾	8.598	.002
	5	11.464	.003
	6¼	14.330	.004
	7½	17.196	.006
	10	22.929	.011
	12½	28.661	.017
	15	34.393	.024
For latitude 21°	1¼	2.866	0.000
	2½	5.733	.001
	3¾	8.599	.002
	5	11.466	.003
	6¼	14.332	.004
	7½	17.198	.006
	10	22.931	.011
	12½	28.664	.018
	15	34.397	.025
For latitude 22°	1¼	2.867	0.000
	2½	5.733	.001
	3¾	8.600	.002
	5	11.467	.003
	6¼	14.334	.005
	7½	17.201	.007
	10	22.934	.012
	12½	28.668	.018
	15	34.401	.026

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
22	00	2.139	2.674	5.347	8.021	10.694	16.041
	02½	.138	.673	.346	.018	.691	.037
	03¾	.138	.672	.345	.017	.690	.034
	05	.138	.672	.344	.016	.688	.032
	07½	.137	.671	.342	.014	.685	.027
	10	2.136	2.670	5.341	8.011	10.682	16.022
	11¼	.136	.670	.340	.010	.680	.020
	12½	.136	.670	.339	.009	.678	.018
	15	.135	.669	.338	.006	.675	.013
	17½	.134	.668	.336	.004	.672	.008
	18¾	.134	.668	.335	.003	.671	.006
	20	2.134	2.667	5.334	8.002	10.669	16.003
	22½	.133	.666	.333	7.999	.666	15.999
	25	.133	.666	.331	.997	.663	.994
	26¼	.132	.665	.331	.996	.661	.992
	27½	.132	.665	.330	.995	.659	.989
	30	2.131	2.664	5.328	7.992	10.656	15.984
	32½	.131	.663	.327	.990	.653	.980
	33¾	.130	.663	.326	.989	.652	.977
	35	.130	.662	.325	.987	.650	.975
	37½	.129	.662	.323	.985	.647	.970
	40	2.129	2.661	5.322	7.983	10.643	15.965
	41¼	.128	.660	.321	.981	.642	.963
	42½	.128	.660	.320	.980	.640	.960
	45	.127	.659	.319	.978	.637	.956
	47½	.127	.658	.317	.975	.634	.951
	48¾	.126	.658	.316	.974	.632	.948
	50	2.126	2.658	5.315	7.973	10.631	15.946
	52½	.125	.657	.314	.970	.627	.941
	55	.125	.656	.312	.968	.624	.936
	56¼	.124	.656	.311	.967	.622	.934
	57½	.124	.655	.310	.966	.621	.931
23	00	2.123	2.654	5.309	7.963	10.618	15.926
	02½	.123	.654	.307	.961	.614	.921
	03¾	.123	.653	.306	.960	.613	.919
	05	.122	.653	.306	.958	.611	.917
	07½	.122	.652	.304	.956	.608	.912
	10	2.121	2.651	5.302	7.953	10.605	15.907
	11¼	.121	.651	.301	.952	.603	.904
	12½	.120	.650	.301	.951	.601	.902
	15	.120	.649	.299	.948	.598	.897
	17½	.119	.649	.297	.946	.595	.892
	18¾	.119	.648	.297	.945	.593	.890
	20	2.118	2.648	5.296	7.944	10.591	15.887
	22½	.118	.647	.294	.941	.588	.882
	25	.117	.646	.292	.939	.585	.877
	26¼	.117	.646	.292	.937	.583	.875
	27½	.116	.645	.291	.936	.581	.872
	30	2.116	2.645	5.289	7.934	10.578	15.867
	32½	.115	.644	.287	.931	.575	.862
	33¾	.115	.643	.287	.930	.573	.860
	35	.114	.643	.286	.929	.571	.857
	37½	.114	.642	.284	.926	.568	.852
	40	2.113	2.641	5.282	7.924	10.565	15.847
	41¼	.113	.641	.282	.922	.563	.845
	42½	.112	.640	.281	.921	.561	.842
	45	.112	.640	.279	.919	.558	.837
	47½	.111	.639	.277	.916	.555	.832
	48¾	.111	.638	.277	.915	.553	.830
	50	2.110	2.638	5.276	7.913	10.551	15.827
	52½	.110	.637	.274	.911	.548	.822
	55	.109	.636	.272	.908	.545	.817
	56¼	.109	.636	.271	.907	.543	.814
	57½	.108	.635	.271	.906	.541	.812
24	00	2.108	2.634	5.269	7.903	10.538	15.807

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 22°	1¼	2.867	0.000
	2½	5.733	.001
	3¾	8.600	.002
	5	11.467	.003
	6¼	14.334	.005
	7½	17.201	.007
	10	22.934	.012
	12½	28.668	.018
	15	34.401	.026
For latitude 23°	1¼	2.867	0.000
	2½	5.734	.001
	3¾	8.601	.002
	5	11.468	.003
	6¼	14.336	.005
	7½	17.203	.007
	10	22.937	.012
	12½	28.672	.019
	15	34.405	.027
For latitude 24°	1¼	2.867	0.000
	2½	5.735	.001
	3¾	8.602	.002
	5	11.470	.003
	6¼	14.338	.005
	7½	17.205	.007
	10	22.940	.012
	12½	28.675	.019
	15	34.410	.028

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
24	00	2.108	2.634	5.269	7.903	10.538	15.807
	02½	.107	.634	.267	.901	.534	.802
	03¾	.107	.633	.266	.899	.533	.799
	05	.106	.633	.265	.898	.531	.796
	07½	.105	.632	.264	.896	.527	.791
	10	2.105	2.631	5.262	7.893	10.524	15.786
	11¼	.104	.631	.261	.892	.522	.784
	12½	.104	.630	.260	.891	.521	.781
	15	.103	.629	.259	.888	.517	.776
	17½	.103	.629	.257	.885	.514	.771
	18¾	.102	.628	.256	.884	.512	.768
	20	2.102	2.628	5.255	7.883	10.510	15.766
	22½	.101	.628	.254	.880	.507	.760
	25	.101	.626	.252	.878	.504	.755
	26¼	.100	.625	.251	.876	.502	.753
	27½	.100	.625	.250	.875	.500	.750
	30	2.099	2.624	5.248	7.872	10.497	15.745
	32½	.099	.623	.247	.870	.493	.740
	33¾	.098	.623	.246	.869	.491	.737
	35	.098	.622	.245	.867	.490	.735
	37½	.097	.622	.243	.865	.486	.729
	40	2.097	2.621	5.241	7.862	10.483	15.724
	41¼	.096	.620	.241	.861	.481	.722
	42½	.096	.620	.240	.859	.479	.719
	45	.095	.619	.238	.857	.476	.714
	47½	.095	.618	.236	.854	.472	.708
	48¾	.094	.618	.235	.853	.471	.706
	50	2.094	2.617	5.234	7.852	10.469	15.703
	52½	.093	.616	.233	.849	.465	.690
	55	.092	.615	.231	.846	.462	.693
	56¼	.092	.615	.230	.845	.460	.690
	57½	.092	.615	.229	.844	.458	.687
25	00	2.091	2.614	5.227	7.841	10.455	15.682
	02½	.090	.613	.226	.838	.451	.677
	03¾	.090	.612	.225	.837	.449	.674
	05	.090	.612	.224	.836	.448	.672
	07½	.089	.611	.222	.833	.444	.666
	10	2.088	2.610	5.220	7.830	10.441	15.661
	11¼	.088	.610	.219	.829	.439	.658
	12½	.087	.609	.219	.828	.437	.656
	15	.087	.608	.217	.825	.433	.650
	17½	.086	.608	.215	.822	.430	.645
	18¾	.086	.607	.214	.821	.428	.642
	20	2.085	2.607	5.213	7.820	10.426	15.640
	22½	.085	.606	.211	.817	.423	.634
	25	.084	.605	.210	.814	.419	.629
	26¼	.083	.604	.209	.813	.417	.626
	27½	.083	.604	.208	.812	.416	.623
	30	2.082	2.603	5.206	7.809	10.412	15.618
	32½	.082	.602	.204	.806	.408	.613
	33¾	.081	.602	.203	.805	.407	.610
	35	.081	.601	.202	.804	.405	.607
	37½	.080	.600	.201	.801	.401	.602
	40	2.079	2.599	5.199	7.798	10.398	15.596
	41¼	.079	.599	.198	.797	.396	.594
	42½	.079	.598	.197	.795	.394	.591
	45	.078	.598	.195	.793	.390	.585
	47½	.077	.597	.193	.790	.387	.580
	48¾	.077	.596	.192	.789	.385	.577
	50	2.077	2.596	5.192	7.787	10.383	15.575
	52½	.076	.595	.190	.785	.379	.569
	55	.075	.594	.188	.782	.376	.564
	56¼	.075	.593	.187	.781	.374	.561
	57½	.074	.593	.186	.779	.372	.558
6	00	2.074	2.592	5.184	7.776	10.369	15.553

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 24°	1¼	2.867	0.000
	2½	5.735	.001
	3¾	8.602	.002
	5	11.470	.003
	6¼	14.338	.005
	7½	17.205	.007
	10	22.940	.012
	12½	28.675	.019
	15	34.410	.028
For latitude 25°	1¼	2.868	0.000
	2½	5.736	.001
	3¾	8.604	.002
	5	11.471	.003
	6¼	14.340	.005
	7½	17.207	.007
	10	22.943	.013
	12½	28.679	.020
	15	34.415	.029
For latitude 26°	1¼	2.868	0.000
	2½	5.736	.001
	3¾	8.605	.002
	5	11.473	.003
	6¼	14.342	.005
	7½	17.210	.007
	10	22.946	.013
	12½	28.683	.021
	15	34.419	.030

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
26	00	2.074	2.592	5.184	7.776	10.369	15.553
	02½	.073	.591	.182	.774	.365	.547
	03¾	.073	.591	.182	.772	.363	.545
	05	.072	.590	.181	.771	.361	.542
	07½	.072	.589	.179	.768	.358	.536
	10	2.071	2.588	5.177	7.765	10.354	15.531
	11¼	.070	.588	.176	.764	.352	.528
	12½	.070	.588	.175	.763	.350	.525
	15	.069	.587	.173	.760	.346	.520
	17½	.069	.586	.171	.757	.343	.514
	18¾	.068	.585	.170	.756	.341	.511
	20	2.068	2.585	5.170	7.754	10.339	15.509
	22½	.067	.584	.168	.752	.335	.503
	25	.066	.583	.166	.749	.332	.498
	26¼	.066	.582	.165	.747	.330	.495
	27½	.066	.582	.164	.746	.328	.492
	30	2.065	2.581	5.162	7.743	10.324	15.486
	32½	.064	.580	.160	.740	.321	.481
	33¾	.064	.580	.159	.739	.319	.478
	35	.063	.579	.158	.738	.317	.475
	37½	.063	.578	.157	.735	.313	.470
	40	2.062	2.577	5.155	7.732	10.309	15.464
	41¼	.061	.577	.154	.731	.307	.461
	42½	.061	.576	.153	.729	.306	.458
	45	.060	.575	.151	.726	.302	.453
	47½	.060	.575	.149	.724	.298	.447
	48¾	.059	.574	.148	.722	.296	.444
	50	2.059	2.574	5.147	7.721	10.294	15.441
	52½	.058	.573	.145	.718	.291	.436
	55	.058	.572	.143	.715	.287	.430
	56¼	.057	.571	.142	.714	.285	.427
	57½	.057	.571	.141	.712	.283	.424
27	00	2.056	2.570	5.140	7.709	10.279	15.419
	02½	.055	.569	.138	.707	.275	.413
	03¾	.055	.568	.137	.705	.274	.410
	05	.054	.568	.136	.704	.272	.407
	07½	.054	.567	.134	.701	.268	.402
	10	2.053	2.566	5.132	7.698	10.264	15.396
	11¼	.052	.566	.131	.697	.262	.393
	12½	.052	.565	.130	.695	.260	.390
	15	.051	.564	.128	.692	.256	.385
	17½	.051	.563	.126	.689	.253	.379
	18¾	.050	.563	.125	.688	.251	.376
	20	2.050	2.562	5.124	7.687	10.249	15.373
	22½	.049	.561	.122	.684	.245	.367
	25	.048	.560	.121	.681	.241	.362
	26¼	.048	.560	.120	.679	.239	.359
	27½	.047	.559	.119	.678	.237	.356
	30	2.047	2.558	5.117	7.675	10.233	15.350
	32½	.046	.557	.115	.672	.229	.344
	33¾	.046	.557	.114	.671	.228	.341
	35	.045	.556	.113	.669	.226	.338
	37½	.044	.555	.111	.666	.222	.333
	40	2.044	2.554	5.109	7.663	10.218	15.327
	41¼	.043	.554	.108	.662	.216	.324
	42½	.043	.553	.107	.660	.214	.321
	45	.042	.553	.105	.658	.210	.315
	47½	.041	.552	.103	.655	.206	.309
	48¾	.041	.551	.102	.653	.204	.306
	50	2.041	2.551	5.101	7.652	10.202	15.304
	52½	.040	.550	.100	.649	.198	.298
	55	.039	.549	.097	.646	.195	.292
	56¼	.039	.548	.096	.644	.193	.289
	57½	.038	.548	.095	.643	.191	.286
28	00	2.037	2.547	5.093	7.640	10.187	15.280

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 26°	1¼	2.868	0.000
	2½	5.736	.001
	3¾	8.605	.002
	5	11.473	.003
	6¼	14.342	.005
	7½	17.210	.007
	10	22.946	.013
	12½	28.683	.021
	15	34.419	.030
For latitude 27°	1¼	2.869	0.000
	2½	5.737	.001
	3¾	8.606	.002
	5	11.475	.003
	6¼	14.344	.005
	7½	17.212	.008
	10	22.949	.014
	12½	28.687	.021
	15	34.424	.031
For latitude 28°	1¼	2.869	0.000
	2½	5.738	.001
	3¾	8.607	.002
	5	11.476	.003
	6¼	14.346	.005
	7½	17.215	.008
	10	22.953	.014
	12½	28.691	.022
	15	34.429	.031

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
28	00	2. 037	2. 547	5. 093	7. 640	10. 187	15. 280
	02½	. 037	. 546	. 091	. 637	. 183	. 274
	03¾	. 036	. 545	. 090	. 636	. 181	. 271
	05	. 036	. 545	. 089	. 634	. 179	. 268
	07½	. 035	. 544	. 088	. 631	. 175	. 262
	10	2. 034	2. 543	5. 085	7. 628	10. 171	15. 256
	11¼	. 034	. 542	. 085	. 627	. 169	. 254
	12½	. 033	. 542	. 084	. 625	. 167	. 251
	15	. 033	. 541	. 082	. 622	. 163	. 245
	17½	. 032	. 540	. 080	. 619	. 159	. 239
	18¾	. 031	. 539	. 079	. 618	. 157	. 236
	20	2. 031	2. 539	5. 078	7. 616	10. 155	15. 233
	22½	. 030	. 538	. 076	. 613	. 151	. 227
	25	. 029	. 537	. 074	. 610	. 147	. 221
	26¼	. 029	. 536	. 073	. 609	. 145	. 218
	27½	. 029	. 536	. 072	. 607	. 143	. 215
	30	2. 028	2. 535	5. 070	7. 604	10. 139	15. 209
	32½	. 027	. 534	. 068	. 601	. 135	. 203
	33¾	. 027	. 533	. 067	. 600	. 133	. 200
	35	. 026	. 533	. 066	. 598	. 131	. 197
	37½	. 025	. 532	. 064	. 596	. 127	. 191
	40	2. 025	2. 531	5. 062	7. 593	10. 123	15. 185
	41¼	. 024	. 530	. 061	. 591	. 121	. 182
	42½	. 024	. 530	. 060	. 590	. 119	. 179
	45	. 023	. 529	. 058	. 586	. 115	. 173
	47½	. 022	. 528	. 056	. 583	. 111	. 167
	48¾	. 022	. 527	. 055	. 582	. 109	. 164
	50	2. 021	2. 527	5. 054	7. 580	10. 107	15. 161
	52½	. 021	. 526	. 052	. 577	. 103	. 155
	55	. 020	. 525	. 050	. 574	. 099	. 149
	56¼	019	. 524	. 049	. 573	. 097	. 146
	57½	. 019	. 524	. 048	. 571	. 095	. 143
29	00	2. 018	2. 523	5. 046	7. 568	10. 091	15. 137
	02½	. 017	. 522	. 044	. 565	. 087	. 131
	03¾	. 017	. 521	. 043	. 564	. 085	. 127
	05	. 017	. 521	. 042	. 562	. 083	. 125
	07½	. 016	. 520	. 039	. 559	. 079	. 118
	10	2. 015	2. 519	5. 037	7. 556	10. 075	15. 112
	11¼	. 015	. 518	. 036	. 555	. 073	. 109
	12½	. 014	. 518	. 035	. 553	. 071	. 106
	15	. 013	. 517	. 033	. 550	. 067	. 100
	17½	. 012	. 516	. 031	. 547	. 063	. 094
	18¾	. 012	. 515	. 030	. 545	. 061	. 091
	20	2. 012	2. 515	5. 029	7. 544	10. 059	15. 088
	22½	. 011	. 514	. 027	. 541	. 055	. 082
	25	. 010	. 513	. 025	. 538	. 050	. 076
	26¼	. 010	. 512	. 024	. 536	. 048	. 073
	27½	. 009	. 512	. 023	. 535	. 046	. 069
	30	2. 008	2. 511	5. 021	7. 532	10. 042	15. 063
	32½	. 008	. 509	. 019	. 529	. 038	. 057
	33¾	. 007	. 509	. 018	. 527	. 036	. 054
	35	. 007	. 508	. 017	. 525	. 034	. 051
	37½	. 006	. 507	. 015	. 522	. 030	. 045
	40	2. 005	2. 506	5. 013	7. 519	10. 026	15. 039
	41¼	. 005	. 506	. 012	. 518	. 024	. 035
	42½	. 004	. 505	. 011	. 516	. 022	. 032
	45	. 003	. 504	. 009	. 513	. 017	. 026
	47½	. 003	. 503	. 007	. 510	. 013	. 020
	48¾	. 002	. 503	. 006	. 508	. 011	. 017
	50	2. 002	2. 502	5. 005	7. 507	10. 009	15. 014
	52½	. 001	. 501	. 003	. 504	. 005	. 007
	55	. 000	. 500	. 000	. 501	. 001	. 001
	56¼	. 000	. 500	4. 999	. 499	9. 999	14. 998
	57½	1. 999	. 499	. 998	. 497	. 997	. 995
30	00	1. 998	2. 498	4. 996	7. 494	9. 992	14. 989

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 28°	1¼	2. 869	0. 000
	2½	5. 738	. 001
	3¾	8. 607	. 002
	5	11. 476	. 003
	6¼	14. 346	. 005
	7½	17. 215	. 008
	10	22. 953	. 014
	12½	28. 691	. 022
	15	34. 429	. 031
For latitude 29°	1¼	2. 869	0. 000
	2½	5. 739	. 001
	3¾	8. 609	. 002
	5	11. 478	. 004
	6¼	14. 348	. 006
	7½	17. 217	. 008
	10	22. 956	. 014
	12½	28. 696	. 022
	15	34. 434	. 032
For latitude 30°	1¼	2. 870	0. 000
	2½	5. 740	. 001
	3¾	8. 611	. 002
	5	11. 480	. 004
	6¼	14. 350	. 006
	7½	17. 220	. 008
	10	22. 960	. 015
	12½	28. 700	. 023
	15	34. 440	. 033

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
30	00	1.998	2.498	4.996	7.494	9.992	14.989
	02½	.998	.497	.994	.491	.988	.982
	03¾	.997	.497	.993	.490	.986	.979
	05	.997	.496	.992	.488	.984	.976
	07½	.996	.495	.990	.485	.980	.970
	10	1.995	2.494	4.988	7.482	9.976	14.964
	11¼	.995	.493	.987	.480	.974	.960
	12½	.994	.493	.986	.479	.971	.957
	15	.993	.492	.984	.476	.967	.951
	17½	.993	.491	.982	.472	.963	.945
	18¾	.992	.490	.981	.471	.961	.942
	20	1.992	2.490	4.979	7.469	9.959	14.938
	22½	.991	.489	.977	.466	.955	.932
	25	.990	.488	.975	.463	.950	.926
	26¼	.990	.487	.974	.461	.948	.923
	27½	.989	.487	.973	.460	.946	.919
	30	1.988	2.486	4.971	7.457	9.942	14.913
	32½	.988	.484	.969	.453	.938	.907
	33¾	.987	.484	.968	.452	.936	.903
	35	.987	.483	.967	.450	.934	.900
	37½	.986	.482	.965	.447	.929	.894
	40	1.985	2.481	4.963	7.444	9.925	14.888
	41¼	.985	.481	.961	.442	.923	.884
	42½	.984	.480	.960	.441	.921	.881
	45	.983	.479	.958	.437	.916	.875
	47½	.982	.478	.956	.434	.912	.868
	48¾	.982	.478	.955	.433	.910	.865
	50	1.982	2.477	4.954	7.431	9.908	14.862
	52½	.981	.476	.952	.428	.904	.856
	55	.980	.475	.950	.425	.899	.849
	56¼	.979	.474	.949	.423	.897	.846
	57½	.979	.474	.948	.421	.895	.843
31	00	1.978	2.473	4.945	7.418	9.891	14.836
	02½	.977	.472	.943	.415	.886	.830
	03¾	.977	.471	.942	.413	.884	.827
	05	.976	.471	.941	.412	.882	.823
	07½	.976	.469	.939	.408	.878	.817
	10	1.975	2.468	4.937	7.405	9.874	14.810
	11¼	.974	.468	.936	.403	.871	.807
	12½	.974	.467	.935	.402	.869	.804
	15	.973	.466	.932	.399	.865	.797
	17½	.972	.465	.930	.395	.861	.791
	18¾	.972	.465	.929	.394	.858	.787
	20	1.971	2.464	4.928	7.392	9.856	14.784
	22½	.970	.463	.926	.389	.852	.778
	25	.969	.462	.924	.386	.848	.771
	26¼	.969	.461	.923	.384	.845	.768
	27½	.969	.461	.921	.382	.843	.765
	30	1.968	2.460	4.919	7.379	9.839	14.758
	32½	.967	.459	.917	.376	.834	.752
	33¾	.967	.458	.916	.374	.832	.748
	35	.966	.458	.915	.373	.830	.745
	37½	.965	.456	.913	.369	.826	.739
	40	1.964	2.455	4.911	7.366	9.821	14.732
	41¼	.964	.455	.910	.364	.819	.729
	42½	.963	.454	.908	.363	.817	.725
	45	.963	.453	.906	.359	.813	.719
	47½	.962	.452	.904	.356	.808	.712
	48¾	.961	.451	.903	.354	.806	.709
	50	1.961	2.451	4.902	7.353	9.804	14.706
	52½	.960	.450	.900	.349	.799	.699
	55	.959	.449	.897	.346	.795	.692
	56¼	.959	.448	.896	.345	.793	.689
	57½	.958	.448	.895	.343	.790	.686
32	00	1.957	2.447	4.893	7.340	9.786	14.679

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 30°	1¼	2.870	0.000
	2½	5.740	.001
	3¾	8.611	.002
	5	11.480	.004
	6¼	14.350	.006
	7½	17.220	.008
	10	22.960	.015
	12½	28.700	.023
	15	34.440	.033
For latitude 31°	1¼	2.870	0.000
	2½	5.741	.001
	3¾	8.611	.002
	5	11.482	.004
	6¼	14.352	.006
	7½	17.223	.008
	10	22.963	.015
	12½	28.704	.023
	15	34.445	.033
For latitude 32°	1¼	2.871	0.000
	2½	5.742	.001
	3¾	8.613	.002
	5	11.483	.004
	6¼	14.355	.006
	7½	17.225	.008
	10	22.967	.015
	12½	28.709	.024
	15	34.450	.034

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
32 00	1.957	2.447	4.893	7.340	9.786	14.679
02½	.956	.445	.891	.336	.782	.672
03¾	.956	.445	.890	.335	.779	.669
05	.955	.444	.889	.333	.777	.666
07½	.955	.443	.886	.330	.773	.659
10	1.954	2.442	4.884	7.326	9.768	14.652
11¼	.953	.441	.883	.325	.766	.649
12½	.953	.441	.882	.323	.764	.646
15	.952	.440	.880	.320	.759	.639
17½	.951	.439	.877	.316	.755	.632
18¾	.951	.438	.876	.315	.753	.629
20	1.950	2.438	4.875	7.313	9.751	14.626
22½	.949	.437	.873	.310	.746	.619
25	.948	.435	.871	.306	.742	.612
26¼	.948	.435	.870	.305	.739	.609
27½	.947	.434	.869	.303	.737	.606
30	1.947	2.433	4.866	7.299	9.733	14.599
32½	.946	.432	.864	.295	.728	.592
33¾	.945	.431	.863	.294	.726	.589
35	.945	.431	.862	.293	.724	.585
37½	.944	.430	.860	.289	.719	.579
40	1.943	2.429	4.857	7.286	9.715	14.572
41¼	.942	.428	.856	.284	.712	.569
42½	.942	.428	.855	.283	.710	.565
45	.941	.426	.853	.279	.706	.558
47½	.940	.425	.851	.276	.701	.551
48¾	.940	.425	.849	.274	.699	.548
50	1.939	2.424	4.848	7.272	9.697	14.545
52½	.938	.423	.846	.269	.692	.538
55	.937	.422	.844	.266	.687	.531
56¼	.937	.421	.843	.264	.685	.528
57½	.937	.421	.841	.262	.683	.524
33 00	1.936	2.420	4.839	7.259	9.678	14.518
02½	.935	.418	.837	.255	.674	.511
03¾	.934	.418	.836	.254	.671	.507
05	.934	.417	.835	.252	.669	.504
07½	.933	.416	.832	.249	.665	.497
10	1.932	2.415	4.830	7.245	9.660	14.490
11¼	.932	.415	.829	.243	.658	.487
12½	.931	.414	.828	.242	.656	.483
15	.930	.413	.825	.238	.651	.476
17½	.929	.412	.823	.235	.646	.470
18¾	.929	.411	.822	.233	.644	.466
20	1.928	2.410	4.821	7.231	9.642	14.463
22½	.927	.409	.819	.228	.637	.456
25	.926	.408	.816	.224	.633	.449
26¼	.926	.408	.815	.223	.630	.445
27½	.926	.407	.814	.221	.628	.442
30	1.925	2.406	4.812	7.218	9.623	14.435
32½	.924	.405	.809	.214	.619	.428
33¾	.923	.404	.808	.212	.617	.425
35	.923	.404	.807	.211	.614	.421
37½	.922	.402	.805	.207	.610	.414
40	1.921	2.401	4.802	7.204	9.605	14.407
41¼	.921	.401	.801	.202	.603	.404
42½	.920	.400	.800	.200	.600	.400
45	.919	.399	.798	.197	.596	.394
47½	.918	.398	.795	.193	.591	.387
48¾	.918	.397	.794	.191	.589	.383
50	1.917	2.397	4.793	7.190	9.586	14.380
52½	.916	.395	.791	.186	.582	.373
55	.915	.394	.789	.183	.577	.366
56¼	.915	.394	.787	.181	.575	.362
57½	.915	.393	.786	.179	.572	.358
34 00	1.914	2.392	4.784	7.176	9.568	14.352

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 32°	1¼	2.871	0.000
	2½	5.742	.001
	3¾	8.613	.002
	5	11.483	.004
	6¼	14.355	.006
	7½	17.225	.008
	10	22.967	.015
	12½	28.709	.024
	15	34.450	.034
For latitude 33°	1¼	2.871	0.000
	2½	5.743	.001
	3¾	8.614	.002
	5	11.485	.004
	6¼	14.357	.006
	7½	17.228	.009
	10	22.971	.015
	12½	28.714	.024
	15	34.456	.035
For latitude 34°	1¼	2.872	0.000
	2½	5.744	.001
	3¾	8.615	.002
	5	11.487	.004
	6¼	14.359	.006
	7½	17.231	.009
	10	22.974	.016
	12½	28.718	.024
	15	34.462	.035

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
34 00	1.914	2.392	4.784	7.176	9.568	14.352
02½	.913	.391	.782	.172	.563	.345
03¾	.912	.390	.780	.171	.561	.341
05	.912	.390	.779	.169	.558	.338
07½	.911	.388	.777	.165	.554	.331
10	1.910	2.387	4.775	7.162	9.549	14.324
11¼	.909	.387	.773	.160	.547	.320
12½	.909	.386	.772	.158	.544	.316
15	.908	.385	.770	.155	.540	.309
17½	.907	.384	.767	.151	.535	.302
18¾	.906	.383	.766	.149	.533	.299
20	1.906	2.383	4.765	7.148	9.530	14.295
22½	.905	.381	.763	.144	.525	.288
25	.904	.380	.760	.141	.521	.281
26¼	.904	.380	.759	.139	.518	.278
27½	.903	.379	.758	.137	.516	.273
30	1.902	2.378	4.756	7.133	9.511	14.267
32½	.901	.377	.753	.130	.507	.260
33¾	.901	.376	.752	.128	.504	.256
35	.900	.375	.751	.126	.502	.253
37½	.899	.374	.749	.123	.497	.246
40	1.898	2.373	4.746	7.119	9.492	14.239
41¼	.898	.373	.745	.117	.490	.235
42½	.897	.372	.744	.116	.488	.231
45	.897	.371	.741	.112	.483	.224
47½	.896	.370	.739	.109	.478	.217
48¾	.895	.369	.738	.107	.476	.213
50	1.895	2.368	4.737	7.105	9.473	14.210
52½	.894	.367	.734	.101	.468	.203
55	.893	.366	.732	.098	.464	.196
56¼	.892	.365	.731	.095	.461	.192
57½	.892	.365	.729	.094	.459	.188
35 00	1.891	2.364	4.727	7.091	9.454	14.181
02½	.890	.362	.725	.087	.449	.174
03¾	.889	.362	.724	.085	.447	.170
05	.889	.361	.722	.083	.445	.167
07½	.888	.360	.720	.079	.439	.160
10	1.887	2.359	4.717	7.076	9.435	14.152
11¼	.886	.358	.716	.074	.433	.149
12½	.886	.357	.715	.073	.430	.145
15	.885	.356	.713	.069	.425	.138
17½	.884	.355	.710	.065	.420	.131
18¾	.884	.354	.709	.064	.418	.127
20	1.883	2.354	4.708	7.062	9.416	14.124
22½	.882	.353	.705	.058	.411	.116
25	.881	.352	.703	.054	.406	.109
26¼	.881	.351	.702	.053	.404	.105
27½	.880	.350	.701	.051	.401	.102
30	1.879	2.349	4.698	7.047	9.396	14.094
32½	.878	.348	.696	.044	.391	.087
33¾	.878	.347	.694	.042	.389	.083
35	.877	.347	.693	.040	.387	.080
37½	.876	.345	.691	.036	.382	.073
40	1.875	2.344	4.688	7.033	9.377	14.065
41¼	.875	.344	.687	.031	.374	.062
42½	.874	.343	.686	.029	.372	.058
45	.873	.342	.684	.025	.367	.051
47½	.872	.341	.681	.022	.362	.043
48¾	.872	.340	.680	.020	.360	.040
50	1.871	2.339	4.679	7.018	9.357	14.036
52½	.870	.338	.676	.014	.352	.029
55	.869	.337	.674	.011	.348	.021
56¼	.869	.336	.673	.009	.345	.018
57½	.869	.336	.671	.007	.343	.014
36 00	1.868	2.334	4.669	7.003	9.338	14.007

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 34°	1¼	2.872	0.000
	2½	5.744	.001
	3¾	8.615	.002
	5	11.487	.004
	6¼	14.359	.006
	7½	17.231	.009
	10	22.974	.016
	12½	28.718	.024
	15	34.462	.035
For latitude 35°	1¼	2.872	0.000
	2½	5.745	.001
	3¾	8.617	.002
	5	11.489	.004
	6¼	14.362	.006
	7½	17.234	.009
	10	22.978	.016
	12½	28.723	.025
	15	34.467	.036
For latitude 36°	1¼	2.873	0.000
	2½	5.745	.001
	3¾	8.618	.002
	5	11.491	.004
	6¼	14.364	.006
	7½	17.237	.009
	10	22.982	.016
	12½	28.728	.025
	15	34.473	.036

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
36 00	1.868	2.334	4.669	7.003	9.338	14.007
02½	.867	.333	.666	.000	.333	13.999
03¾	.866	.333	.665	6.998	.330	.996
05	.866	.332	.664	.996	.328	.992
07½	.865	.331	.661	.992	.323	.984
10	1.864	2.330	4.659	6.989	9.318	13.977
11¼	.863	.329	.658	.987	.316	.973
12½	.863	.328	.657	.985	.313	.970
15	.862	.327	.654	.981	.308	.962
17½	.861	.326	.652	.977	.303	.955
18¾	.860	.325	.650	.976	.301	.951
20	1.860	2.325	4.649	6.974	9.298	13.947
22½	.859	.323	.647	.970	.293	.940
25	.858	.322	.644	.966	.288	.933
26¼	.857	.321	.643	.964	.286	.929
27½	.857	.321	.642	.963	.283	.925
30	1.856	2.320	4.639	6.959	9.278	13.918
32½	.855	.318	.637	.955	.273	.910
33¾	.854	.318	.635	.953	.271	.906
35	.854	.317	.634	.951	.268	.903
37½	.853	.316	.632	.948	.264	.895
40	1.852	2.315	4.629	6.944	9.259	13.888
41¼	.851	.314	.628	.942	.256	.884
42½	.851	.313	.627	.940	.254	.880
45	.850	.312	.624	.936	.249	.873
47½	.849	.311	.622	.933	.243	.865
48¾	.848	.310	.621	.931	.241	.862
50	1.848	2.310	4.619	6.929	9.238	13.858
52½	.847	.308	.617	.925	.233	.850
55	.846	.307	.614	.921	.228	.843
56¼	.845	.306	.613	.919	.226	.839
57½	.845	.306	.612	.918	.223	.835
37 00	1.844	2.305	4.609	6.914	9.218	13.828
02½	.843	.303	.607	.910	.213	.820
03¾	.842	.303	.605	.908	.211	.816
05	.842	.302	.604	.906	.208	.813
07½	.841	.301	.602	.902	.203	.805
10	1.840	2.300	4.599	6.899	9.198	13.797
11¼	.839	.299	.598	.897	.196	.794
12½	.839	.298	.597	.895	.193	.790
15	.838	.297	.594	.891	.188	.782
17½	.837	.296	.592	.887	.183	.775
18¾	.836	.295	.590	.885	.181	.771
20	1.836	2.295	4.589	6.884	9.178	13.767
22½	.835	.293	.587	.880	.173	.759
25	.834	.292	.584	.876	.168	.752
26¼	.833	.291	.583	.874	.165	.748
27½	.833	.291	.581	.872	.163	.744
30	1.832	2.289	4.579	6.868	9.158	13.737
32½	.831	.288	.576	.864	.153	.729
33¾	.830	.288	.575	.863	.150	.725
35	.830	.287	.574	.861	.148	.721
37½	.829	.286	.571	.857	.142	.714
40	1.827	2.284	4.569	6.853	9.137	13.706
41¼	.827	.284	.567	.851	.135	.702
42½	.826	.283	.566	.849	.132	.698
45	.825	.282	.564	.845	.127	.691
47½	.824	.280	.561	.841	.122	.683
48¾	.824	.280	.560	.840	.119	.679
50	1.823	2.279	4.558	6.838	9.117	13.675
52½	.822	.278	.556	.834	.112	.668
55	.821	.277	.553	.830	.107	.660
56¼	.821	.276	.552	.828	.104	.656
57½	.820	.275	.551	.826	.101	.652
38 00	1.819	2.274	4.548	6.822	9.096	13.644

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 36°	1¼	2.873	0.000
	2½	5.745	.001
	3¾	8.618	.002
	5	11.491	.004
	6¼	14.364	.006
	7½	17.237	.009
	10	22.982	.016
	12½	28.728	.025
	15	34.473	.036
For latitude 37°	1¼	2.873	0.000
	2½	5.746	.001
	3¾	8.620	.002
	5	11.493	.004
	6¼	14.366	.006
	7½	17.240	.009
	10	22.986	.016
	12½	28.733	.025
	15	34.479	.036
For latitude 38°	1¼	2.874	0.000
	2½	5.747	.001
	3¾	8.621	.002
	5	11.495	.004
	6¼	14.369	.006
	7½	17.242	.009
	10	22.990	.016
	12½	28.738	.025
	15	34.485	.037

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
38	00	1.819	2.274	4.548	6.822	9.096	13.644
	02½	.818	.273	.546	.818	.091	.636
	03¾	.818	.272	.544	.816	.089	.633
	05	.817	.272	.543	.814	.086	.629
	07½	.816	.270	.540	.811	.081	.621
	10	1.815	2.269	4.538	6.807	9.076	13.614
	11¼	.815	.268	.537	.805	.073	.610
	12½	.814	.268	.535	.803	.071	.606
	15	.813	.266	.533	.799	.065	.598
	17½	.812	.265	.530	.795	.060	.590
	18¾	.812	.264	.529	.793	.058	.586
	20	1.811	2.264	4.527	6.791	9.055	13.582
	22½	.810	.262	.525	.787	.050	.575
	25	.809	.261	.522	.783	.045	.567
	26¼	.808	.260	.521	.781	.042	.563
	27½	.808	.260	.520	.780	.039	.559
	30	1.807	2.259	4.517	6.776	9.034	13.551
	32½	.806	.257	.515	.772	.029	.544
	33¾	.805	.257	.513	.770	.026	.540
	35	.805	.256	.512	.768	.024	.536
	37½	.804	.255	.509	.764	.019	.528
	40	1.803	2.253	4.507	6.760	9.013	13.520
	41¼	.802	.253	.505	.758	.011	.516
	42½	.802	.252	.504	.756	.008	.513
	45	.801	.251	.501	.752	.003	.504
	47½	.800	.249	.499	.748	8.998	.497
	48¾	.799	.249	.498	.746	.995	.493
	50	1.798	2.248	4.496	6.744	8.992	13.489
	52½	.797	.247	.494	.740	.987	.481
	55	.796	.245	.491	.736	.982	.473
	56¼	.796	.245	.490	.734	.979	.469
	57½	.795	.244	.488	.732	.977	.465
39	00	1.794	2.243	4.486	6.729	8.971	13.457
	02½	.793	.242	.483	.725	.966	.449
	03¾	.793	.241	.482	.723	.964	.445
	05	.792	.240	.480	.721	.961	.441
	07½	.791	.239	.478	.717	.956	.433
	10	1.790	2.238	4.475	6.713	8.950	13.425
	11¼	.790	.237	.474	.711	.948	.422
	12½	.789	.236	.473	.709	.945	.418
	15	.788	.235	.470	.705	.940	.410
	17½	.787	.234	.467	.701	.934	.402
	18¾	.786	.233	.466	.699	.932	.398
	20	1.786	2.232	4.465	6.697	8.929	13.394
	22½	.785	.231	.462	.693	.924	.386
	25	.784	.230	.459	.689	.919	.378
	26¼	.783	.229	.458	.687	.916	.374
	27½	.783	.228	.457	.685	.913	.370
	30	1.782	2.227	4.454	6.681	8.908	13.362
	32½	.781	.226	.451	.677	.903	.354
	33¾	.780	.225	.450	.675	.900	.350
	35	.779	.224	.449	.673	.897	.346
	37½	.778	.223	.446	.669	.892	.338
	40	1.777	2.222	4.443	6.665	8.887	13.330
	41¼	.777	.221	.442	.663	.884	.326
	42½	.776	.220	.441	.661	.881	.322
	45	.775	.219	.438	.657	.876	.314
	47½	.774	.218	.435	.653	.871	.306
	48¾	.774	.217	.434	.651	.868	.302
	50	1.773	2.216	4.433	6.649	8.865	13.298
	52½	.772	.215	.430	.645	.860	.290
	55	.771	.214	.427	.641	.855	.282
	56¼	.770	.213	.426	.639	.852	.278
	57½	.770	.212	.425	.637	.849	.274
40	00	1.769	2.211	4.422	6.633	8.844	13.266

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 38°	1¼	2.874	0.000
	2½	5.747	.001
	3¾	8.621	.002
	5	11.495	.004
	6¼	14.369	.006
	7½	17.242	.009
	10	22.990	.016
	12½	28.738	.025
	15	34.485	.037
For latitude 39°	1¼	2.874	0.000
	2½	5.748	.001
	3¾	8.623	.002
	5	11.497	.004
	6¼	14.371	.006
	7½	17.245	.009
	10	22.994	.016
	12½	28.743	.026
	15	34.491	.037
For latitude 40°	1¼	2.875	0.000
	2½	5.749	.001
	3¾	8.624	.002
	5	11.499	.004
	6¼	14.374	.006
	7½	17.248	.009
	10	22.998	.017
	12½	28.748	.026
	15	34.497	.037

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
40	00	1.769	2.211	4.422	6.633	8.844	13.266
	02½	.768	.210	.419	.629	.838	.258
	03¾	.767	.209	.418	.627	.836	.254
	05	.767	.208	.416	.625	.833	.250
	07½	.765	.207	.414	.621	.828	.241
	10	1.764	2.206	4.411	6.617	8.822	13.233
	11¼	.764	.205	.410	.615	.819	.229
	12½	.763	.204	.408	.612	.817	.224
	15	.762	.203	.406	.609	.811	.217
	17½	.761	.202	.403	.605	.806	.209
	18¾	.761	.201	.402	.602	.803	.205
	20	1.760	2.200	4.400	6.600	8.801	13.201
	22½	.759	.199	.398	.596	.795	.193
	25	.758	.197	.395	.592	.790	.185
	26¼	.757	.197	.394	.590	.787	.181
	27½	.757	.196	.392	.588	.784	.177
	30	1.756	2.195	4.389	6.584	8.779	13.168
	32½	.755	.193	.387	.580	.773	.160
	33¾	.754	.193	.385	.578	.771	.156
	35	.754	.192	.384	.576	.768	.152
	37½	.753	.191	.381	.572	.763	.144
	40	1.751	2.189	4.379	6.568	8.757	13.136
	41¼	.751	.189	.377	.566	.754	.132
	42½	.750	.188	.376	.564	.752	.128
	45	.749	.186	.373	.560	.746	.119
	47½	.748	.185	.370	.556	.741	.111
	48¾	.748	.184	.369	.554	.738	.107
	50	1.747	2.184	4.368	6.551	8.735	13.103
	52½	.746	.182	.365	.547	.730	.095
	55	.745	.181	.362	.543	.724	.087
	56¼	.744	.180	.361	.541	.722	.083
	57½	.744	.180	.360	.539	.719	.078
41	00	1.743	2.178	4.357	6.535	8.713	13.070
	02½	.742	.177	.354	.531	.708	.062
	03¾	.741	.176	.353	.529	.705	.058
	05	.740	.176	.351	.527	.702	.054
	07½	.739	.174	.348	.523	.697	.045
	10	1.738	2.173	4.346	6.519	8.691	13.037
	11¼	.738	.172	.344	.517	.689	.033
	12½	.737	.171	.343	.514	.686	.029
	15	.736	.170	.340	.510	.680	.021
	17½	.735	.169	.337	.506	.675	.012
	18¾	.734	.168	.336	.504	.672	.008
	20	1.734	2.167	4.335	6.502	8.669	13.004
	22½	.733	.166	.332	.498	.664	12.996
	25	.732	.167	.329	.494	.658	.987
	26¼	.731	.164	.328	.492	.656	.983
	27½	.731	.163	.326	.490	.653	.979
	30	1.729	2.162	4.324	6.485	8.647	12.971
	32½	.728	.160	.321	.481	.642	.963
	33¾	.728	.160	.319	.479	.639	.958
	35	.727	.159	.318	.477	.636	.954
	37½	.726	.158	.315	.473	.631	.946
	40	1.725	2.156	4.313	6.469	8.625	12.938
	41¼	.724	.156	.311	.467	.622	.933
	42½	.724	.155	.310	.465	.619	.929
	45	.723	.153	.307	.460	.614	.921
	47½	.722	.152	.304	.456	.608	.913
	48¾	.721	.151	.303	.454	.606	.908
	50	1.721	2.151	4.301	6.452	8.603	12.904
	52½	.719	.149	.297	.448	.597	.896
	55	.718	.148	.296	.444	.592	.887
	56¼	.718	.147	.294	.442	.589	.883
	57½	.717	.146	.293	.439	.586	.879
42	00	1.716	2.145	4.290	6.435	8.580	12.871

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 40°	1¼	2.875	0.000
	2½	5.749	.001
	3¾	8.624	.002
	5	11.499	.004
	6¼	14.374	.006
	7½	17.248	.009
	10	22.998	.017
	12½	28.748	.026
	15	34.497	.037
For latitude 41°	1¼	2.875	0.000
	2½	5.750	.001
	3¾	8.626	.002
	5	11.501	.004
	6¼	14.376	.006
	7½	17.252	.009
	10	23.002	.017
	12½	28.753	.026
	15	34.503	.037
For latitude 42°	1¼	2.876	0.000
	2½	5.751	.001
	3¾	8.627	.002
	5	11.503	.004
	6¼	14.379	.007
	7½	17.255	.009
	10	23.006	.017
	12½	28.758	.026
	15	34.509	.038

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel		Abscissas of developed parallel					
		Longitude interval					
		1′	1¼′	2½′	3¾′	5′	7½′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
42	00	1.716	2.145	4.290	6.435	8.580	12.871
	02½	.715	.144	.287	.431	.575	.862
	03¾	.714	.143	.286	.429	.572	.858
	05	.714	.142	.285	.427	.569	.854
	07½	.713	.141	.282	.423	.564	.845
	10	1.712	2.140	4.279	6.418	8.558	12.837
	11¼	.711	.139	.278	.416	.555	.833
	12½	.711	.138	.276	.414	.552	.829
	15	.709	.137	.273	.410	.547	.820
	17½	.708	.135	.271	.406	.541	.812
	18¾	.708	.135	.269	.404	.538	.807
	20	1.707	2.134	4.268	6.402	8.535	12.803
	22½	.706	.132	.265	.397	.530	.795
	25	.705	.131	.262	.393	.524	.786
	26¼	.704	.130	.261	.391	.521	.782
	27½	.704	.130	.259	.388	.519	.778
	30	1.703	2.128	4.256	6.385	8.513	12.769
	32½	.701	.127	.254	.380	.507	.761
	33¾	.701	.126	.252	.378	.504	.757
	35	.700	.125	.251	.376	.502	.752
	37½	.699	.124	.248	.372	.496	.744
	40	1.698	2.123	4.245	6.368	8.490	12.735
	41¼	.697	.122	.244	.366	.487	.731
	42½	.697	.121	.242	.363	.485	.727
	45	.696	.120	.239	.359	.479	.718
	47½	.695	.118	.237	.355	.473	.710
	48¾	.694	.118	.235	.353	.470	.706
	50	1.693	2.117	4.234	6.351	8.468	12.701
	52½	.692	.115	.231	.346	.462	.693
	55	.691	.114	.228	.342	.456	.684
	56¼	.691	.113	.227	.340	.453	.680
	57½	.690	.113	.225	.338	.450	.676
43	00	1.689	2.111	4.222	6.334	8.445	12.667
	02½	.688	.110	.220	.329	.439	.659
	03¾	.687	.109	.218	.327	.436	.654
	05	.687	.108	.217	.325	.433	.650
	07½	.686	.107	.214	.321	.428	.641
	10	1.684	2.105	4.211	6.316	8.422	12.633
	11¼	.684	.105	.210	.314	.419	.629
	12½	.683	.104	.208	.312	.416	.624
	15	.682	.103	.205	.308	.410	.616
	17½	.681	.101	.202	.303	.405	.607
	18¾	.680	.100	.201	.301	.402	.603
	20	1.680	2.100	4.199	6.299	8.399	12.598
	22½	.679	.098	.197	.295	.393	.590
	25	.677	.097	.194	.291	.387	.581
	26¼	.677	.096	.192	.289	.385	.577
	27½	.676	.095	.191	.286	.382	.573
	30	1.675	2.094	4.188	6.282	8.376	12.564
	32½	.674	.093	.185	.278	.370	.555
	33¾	.673	.092	.184	.275	.367	.551
	35	673	.091	.182	.273	.364	.547
	37½	.672	.090	.179	.269	.359	.538
	40	1.671	2.088	4.176	6.265	8.353	12.529
	41¼	.670	.087	.175	.262	.350	.525
	42½	.669	.087	.173	.260	.347	.521
	45	.668	.085	.171	.256	.341	.512
	47½	.667	.084	.168	.252	.336	.503
	48¾	.666	.083	.166	.249	.333	.499
	50	1.666	2.082	4.165	6.247	8.330	12.495
	52½	.665	.081	.162	.243	.324	.486
	55	.664	.080	.159	.239	.318	.477
	56¼	.663	.079	.158	.236	.315	.473
	57½	.662	.078	.156	.234	.312	.468
44	00	1.661	2.077	4.153	6.230	8.307	12.460

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 42°	1¼	2.876	0.000
	2½	5.751	.001
	3¾	8.627	.002
	5	11.503	.004
	6¼	14.379	.007
	7½	17.255	.009
	10	23.006	.017
	12½	28.758	.026
	15	34.509	.038
For latitude 43°	1¼	2.876	0.000
	2½	5.752	.001
	3¾	8.629	.002
	5	11.505	.004
	6¼	14.382	.007
	7½	17.258	.009
	10	23.010	.017
	12½	28.763	.026
	15	34.515	.038
For latitude 44°	1¼	2.877	0.000
	2½	5.753	.001
	3¾	8.630	.002
	5	11.507	.004
	6¼	14.384	.007
	7½	17.261	.009
	10	23.014	.017
	12½	28.768	.026
	15	34.521	.038

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
44 00	1.661	2.077	4.153	6.230	8.307	12.460
02½	.660	.075	.150	.226	.301	.451
03¾	.660	.074	.149	.223	.298	.447
05	.659	.074	.147	.221	.295	.442
07½	.658	.072	.145	.217	.289	.434
10	1.657	2.071	4.142	6.212	8.283	12.425
11¼	.656	.070	.140	.210	.280	.420
12½	.656	.069	.139	.208	.277	.416
15	.654	.068	.136	.204	.272	.407
17½	.653	.066	.133	.199	.266	.399
18¾	.653	.066	.131	.197	.263	.394
20	1.652	2.065	4.130	6.195	8.260	12.390
22½	.651	.064	.127	.191	.254	.381
25	.650	.062	.124	.186	.248	.372
26¼	.649	.061	.123	.184	.245	.369
27½	.648	.061	.121	.182	.242	.364
30	1.647	2.059	4.118	6.177	8.236	12.355
32½	.646	.058	.115	.173	.231	.346
33¾	.645	.057	.114	.171	.228	.341
35	.645	.056	.112	.169	.225	.337
37½	.644	.055	.109	.164	.219	.328
40	1.643	2.053	4.106	6.160	8.213	12.319
41¼	.642	.052	.105	.158	.210	.315
42½	.641	.052	.104	.155	.207	.311
45	.640	.050	.101	.151	.201	.302
47½	.639	.049	.098	.146	.195	.293
48¾	.639	.048	.096	.144	.192	.289
50	1.638	2.047	4.095	6.142	8.189	12.284
52½	.637	.046	.092	.138	.184	.275
55	.636	.044	.089	.133	.178	.266
56¼	.635	.044	.087	.131	.175	.262
57½	.634	.043	.086	.129	.172	.258
45 00	1.633	2.041	4.083	6.124	8.166	12.249
02½	.632	.040	.080	.120	.160	.240
03¾	.631	.039	.078	.118	.157	.235
05	.631	.038	.077	.115	.154	.231
07½	.630	.037	.074	.111	.148	.222
10	1.629	2.036	4.071	6.107	8.142	12.213
11¼	.628	.035	.070	.105	.139	.209
12½	.627	.034	.068	.102	.136	.204
15	.626	.033	.065	.098	.130	.195
17½	.625	.031	.062	.093	.124	.186
18¾	.624	.030	.061	.091	.121	.182
20	1.624	2.030	4.059	6.089	8.118	12.177
22½	.622	.028	.056	.084	.112	.168
25	.621	.027	.053	.080	.106	.160
26¼	.621	.026	.052	.078	.103	.155
27½	.620	.025	.050	.075	.100	.151
30	1.619	2.024	4.047	6.071	8.094	12.142
32½	.618	.022	.044	.066	.088	.133
33¾	.617	.021	.043	.064	.085	.128
35	.616	.021	.041	.062	.082	.124
37½	.615	.019	.038	.057	.076	.115
40	1.614	2.018	4.035	6.053	8.070	12.106
41¼	.613	.017	.034	.051	.067	.101
42½	.613	.016	.032	.048	.065	.097
45	.612	.015	.029	.044	.059	.088
47½	.611	.013	.026	.039	.053	.079
48¾	.610	.012	.025	.037	.050	.074
50	1.609	2.012	4.023	6.035	8.047	12.070
52½	.608	.010	.020	.030	.040	.061
55	.607	.009	.017	.026	.034	.052
56¼	.606	.008	.016	.024	.031	.047
57½	.606	.007	.014	.021	.028	.043
46 00	1.605	2.006	4.011	6.017	8.022	12.034

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 44°	1¼	2.877	0.000
	2½	5.753	.001
	3¾	8.630	.002
	5	11.507	.004
	6¼	14.384	.007
	7½	17.261	.009
	10	23.014	.017
	12½	28.768	.026
	15	34.521	.038
For latitude 45°	1½	2.877	0.000
	2½	5.755	.001
	3¾	8.632	.002
	5	11.509	.004
	6¼	14.387	.007
	7½	17.264	.009
	10	23.018	.017
	12½	28.773	.026
	15	34.527	.038
For latitude 46°	1¼	2.878	0.000
	2½	5.756	.001
	3¾	8.633	.002
	5	11.511	.004
	6¼	14.389	.007
	7½	17.267	.009
	10	23.022	.017
	12½	28.778	.026
	15	34.534	.038

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
46 00	1.605	2.006	4.011	6.017	8.022	12.034
02½	.603	.004	.008	.012	.016	.025
03¾	.603	.003	.007	.010	.013	.020
05	.602	.003	.005	.008	.010	.016
07½	.601	.001	.002	.003	.004	.007
10	1.600	2.000	3.999	5.999	7.998	11.998
11¼	.599	1.999	.998	.996	.995	.993
12½	.598	.998	.996	.994	.992	.988
15	.597	.997	.993	.990	.986	.979
17½	.596	.995	.990	.985	.980	.970
18¾	.595	.994	.989	.983	.977	.966
20	1.595	1.994	3.987	5.981	7.974	11.961
22½	.594	.992	.984	.976	.968	.952
25	.592	.990	.981	.972	.962	.943
26¼	.592	.990	.979	.969	.959	.938
27½	.591	.989	.978	.967	.956	.934
30	1.590	1.987	3.975	5.962	7.950	11.925
32½	.589	.986	.972	.958	.944	.916
33¾	.588	.985	.970	.956	.941	.911
35	.588	.984	.969	.953	.938	.907
37½	.586	.983	.966	.949	.932	.897
40	1.585	1.981	3.963	5.944	7.926	11.888
41¼	.584	.981	.961	.942	.923	.884
42½	.584	.980	.960	.940	.919	.879
45	.583	.978	.957	.935	.913	.870
47½	.581	.977	.954	.930	.907	.861
48¾	.581	.976	.952	.928	.904	.856
50	1.580	1.975	3.951	5.926	7.901	11.852
52½	.579	.974	.948	.921	.895	.843
55	.578	.972	.944	.917	.889	.833
56¼	.577	.971	.943	.914	.886	.829
57½	.577	.971	.941	.912	.883	.824
47 00	1.575	1.969	3.938	5.908	7.877	11.815
02½	.574	.968	.935	.903	.871	.806
03¾	.574	.967	.934	.901	.868	.801
05	.573	.966	.932	.898	.864	.797
07½	.572	.965	.929	.894	.858	.788
10	1.570	1.963	3.926	5.889	7.852	11.778
11¼	.570	.962	.925	.887	.849	.774
12½	.569	.962	.923	.885	.846	.769
15	.568	.960	.920	.880	.840	.760
17½	.567	.958	.917	.875	.834	.751
18¾	.566	.958	.915	.873	.831	.746
20	1.565	1.957	3.914	5.871	7.828	11.741
22½	.564	.955	.911	.866	.821	.732
25	.563	.954	.908	.861	.815	.723
26¼	.562	.953	.906	.859	.812	.718
27½	.562	.952	.905	.857	.809	.714
30	1.561	1.951	3.901	5.852	7.803	11.704
32½	.559	.949	.898	.848	.797	.695
33¾	.559	.948	.897	.845	.794	.691
35	.558	.948	.895	.843	.791	.686
37½	.557	.946	.892	.838	.784	.677
40	1.556	1.945	3.889	5.834	7.778	11.667
41¼	.555	.944	.888	.831	.775	.663
42½	.554	.943	.886	.829	.772	.658
45	.553	.941	.883	.824	.766	.649
47½	.552	.940	.880	.820	.760	.639
48¾	.551	.939	.878	.817	.757	.635
50	1.551	1.938	3.877	5.815	7.753	11.630
52½	.549	.937	.874	.810	.747	.621
55	.548	.935	.871	.806	.741	.612
56¼	.548	.934	.869	.803	.738	.607
57½	.547	.934	.867	.801	.735	.602
48 00	1.546	1.932	3.864	5.796	7.729	11.593

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 46°	1¼	2.878	0.000
	2½	5.756	.001
	3¾	8.633	.002
	5	11.511	.004
	6¼	14.389	.007
	7½	17.267	.009
	10	23.022	.017
	12½	28.778	.026
	15	34.534	.038
For latitude 47°	1¼	2.878	0.000
	2½	5.757	.001
	3¾	8.635	.002
	5	11.513	.004
	6¼	14.392	.007
	7½	17.270	.009
	10	23.026	.017
	12½	28.784	.026
	15	34.540	.038
For latitude 48°	1¼	2.879	0.000
	2½	5.758	.001
	3¾	8.636	.002
	5	11.515	.004
	6¼	14.394	.007
	7½	17.273	.009
	10	23.030	.017
	12½	28.789	.026
	15	34.546	.038

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
48 00	1,546	1.932	3.864	5.796	7.729	11.593
02½	.544	.931	.861	.792	.722	.583
03¾	.544	.930	.860	.789	.719	.579
05	.543	.929	.858	.787	.716	.574
07½	.542	.927	.855	.782	.710	.565
10	1.541	1.926	3.852	5.778	7.704	11.555
11¼	.540	.925	.850	.775	.701	.551
12½	.540	.924	.849	.773	.697	.546
15	.538	.923	.846	.768	.691	.537
17½	.537	.921	.842	.764	.685	.527
18¾	.536	.920	.841	.761	.682	.523
20	1.536	1.920	3.839	5.759	7.679	11.518
22½	.534	.918	.836	.754	.672	.509
25	.533	.917	.833	.750	.666	.499
26¼	.533	.916	.831	.747	.663	.494
27½	.532	.915	.830	.745	.660	.490
30	1.531	1.913	3.827	5.740	7.654	11.480
32½	.529	.912	.824	.735	.647	.471
33¾	.529	.911	.822	.733	.644	.466
35	.528	.910	.820	.731	.641	.462
37½	.527	.909	.817	.726	.635	.452
40	1.526	1.907	3.814	5.721	7.628	11.443
41¼	.525	.906	.813	.719	.625	.438
42½	.524	.905	.811	.717	.622	.433
45	.523	.904	.808	.712	.616	.424
47½	.522	.902	.805	.707	.610	.414
48¾	.521	.902	.803	.705	.606	.410
50	1.521	1.901	3.802	5.702	7.603	11.405
52½	.519	.899	.798	.698	.597	.395
55	.518	.898	.795	.693	.591	.386
56¼	.518	.897	.794	.691	.587	.381
57½	.517	.896	.792	.688	.584	.376
49 00	1.516	1.894	3.789	5.684	7.578	11.367
02½	.514	.893	.786	.679	.572	.358
03¾	.514	.892	.784	.676	.569	.353
05	.513	.891	.783	.674	.565	.348
07½	.512	.890	.780	.669	.559	.339
10	1.511	1.888	3.776	5.665	7.553	11.329
11¼	.510	.887	.775	.662	.550	.324
12½	.509	.887	.773	.660	.546	.320
15	.508	.885	.770	.655	.540	.310
17½	.507	.883	.767	.650	.534	.301
18¾	.506	.883	.765	.648	.531	.296
20	1.505	1.882	3.764	5.646	7.527	11.291
22½	.504	.880	.760	.641	.521	.281
25	.503	.879	.757	.636	.515	.272
26¼	.502	.878	.756	.634	.511	.267
27½	.502	.877	.754	.631	.508	.262
30	1.500	1.875	3.751	5.626	7.502	11.253
32½	.499	.874	.748	.622	.496	.243
33¾	.498	.873	.746	.619	.492	.238
35	.498	.872	.745	.617	.489	.234
37½	.497	.871	.741	.612	.483	.224
40	1.495	1.869	3.738	5.607	7.476	11.215
41¼	.495	.868	.737	.605	.473	.210
42½	.494	.867	.735	.602	.470	.205
45	.493	.866	.732	.598	.464	.195
47½	.492	.864	.729	.593	.457	.186
48¾	.491	.863	.727	.591	.454	.181
50	1.490	1.863	3.725	5.588	7.451	11.176
52½	.489	.861	.722	.583	.444	.167
55	.488	.860	.719	.578	.438	.157
56¼	.487	.859	.717	.576	.435	.152
57½	.486	.858	.716	.574	.432	.147
50 00	1.485	1.856	3.713	5.569	7.425	11.138

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 48°	1¼	2.879	0.000
	2½	5.758	.001
	3¾	8.636	.002
	5	11.515	.004
	6¼	14.394	.007
	7½	17.273	.009
	10	23.030	.017
	12½	28.789	.026
	15	34.546	.038
For latitude 49°	1¼	2.879	0.000
	2½	5.759	.001
	3¾	8.638	.002
	5	11.517	.004
	6¼	14.397	.007
	7½	17.276	.009
	10	23.034	.017
	12½	28.794	.026
	15	34.552	.037
For latitude 50°	1¼	2.880	0.000
	2½	5.760	.001
	3¾	8.639	.002
	5	11.519	.004
	6¼	14.399	.006
	7½	17.279	.009
	10	23.039	.017
	12½	28.799	.026
	15	34.558	.037

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE III.—*Coordinates for the projection of maps, scale 1 : 31,680*—Continued

Latitude of parallel	Abscissas of developed parallel					
	Longitude interval					
	1′	1¼′	2½′	3¾′	5′	7½′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
50 00	1. 485	1. 856	3. 713	5. 569	7. 425	11. 138
02½	. 484	. 855	. 709	. 564	. 419	. 128
03¾	. 483	. 854	. 708	. 562	. 416	. 123
05	. 482	. 853	. 706	. 559	. 412	. 118
07½	. 481	. 851	. 703	. 554	. 406	. 109
10	1. 480	1. 850	3. 700	5. 550	7. 399	11. 099
11¼	. 479	. 849	. 698	. 547	. 396	. 094
12½	. 479	. 848	. 697	. 545	. 393	. 090
15	. 477	. 847	. 693	. 540	. 387	. 080
17½	. 476	. 845	. 690	. 535	. 380	. 070
18¾	. 475	. 844	. 688	. 533	. 377	. 065
20	1. 475	1. 843	3. 687	5. 530	7. 374	11. 061
22½	. 473	. 842	. 684	. 525	. 367	. 051
25	. 472	. 840	. 680	. 521	. 361	. 041
26¼	. 471	. 839	. 679	. 518	. 358	. 036
27½	. 471	. 839	. 677	. 516	. 354	. 031
30	1. 470	1. 837	3. 674	5. 511	7. 348	11. 022
32½	. 468	. 835	. 671	. 506	. 341	. 012
33¾	. 468	. 835	. 669	. 504	. 338	. 007
35	. 467	. 834	. 667	. 501	. 335	. 002
37½	. 466	. 832	. 664	. 496	. 328	10. 993
40	1. 464	1. 830	3. 661	5. 491	7. 322	10. 983
41¼	. 464	. 830	. 659	. 489	. 319	. 978
42½	. 463	. 829	. 658	. 487	. 316	. 973
45	. 462	. 827	. 655	. 482	. 309	. 964
47½	. 461	. 826	. 651	. 477	. 303	. 954
48¾	. 460	. 825	. 650	. 474	. 299	. 949
50	1. 459	1. 824	3. 648	5. 472	7. 296	10. 944
52½	. 458	. 822	. 645	. 467	. 290	. 934
55	. 457	. 821	. 642	. 462	283	. 925
56¼	. 456	. 820	. 640	. 460	. 280	. 920
57½	. 455	. 819	. 638	. 457	. 277	. 915
51 00	1. 454	1. 818	3. 635	5. 453	7. 270	10. 905
02½	. 453	. 816	. 632	. 448	. 264	. 895
03¾	. 452	. 815	. 630	. 445	. 260	. 890
05	. 451	814	. 628	. 443	257	. 886
07½	. 450	. 813	. 625	. 438	. 250	. 876
10	1. 449	1. 811	3. 622	5. 433	7. 244	10. 866
11¼	. 448	810	. 620	. 431	. 241	. 861
12½	447	. 809	. 619	. 428	. 237	. 856
15	. 446	808	615	. 423	. 231	846
17½	. 445	. 806	. 612	. 418	. 224	. 837
18¾	. 444	. 805	. 611	. 416	. 221	. 832
20	1. 444	1. 804	3. 609	5. 413	7. 218	10. 827
22½	. 442	803	. 606	. 408	. 211	. 817
25	. 441	. 801	. 602	. 404	. 205	. 807
26¼	. 440	. 800	. 601	. 401	. 201	. 802
27½	. 440	. 800	. 599	. 399	. 198	. 797
30	1. 438	1. 798	3. 596	5. 394	7. 192	10. 787
32½	. 437	. 796	. 593	. 389	. 185	. 778
33¾	. 436	. 795	. 591	. 386	. 182	. 773
35	. 436	. 795	. 589	. 384	. 178	. 768
37½	. 434	. 793	. 586	. 379	. 172	. 758
40	1. 433	1. 791	3. 583	5. 374	7. 165	10. 748
41¼	. 432	. 791	. 581	. 372	. 162	. 743
42½	. 432	. 790	. 579	. 369	. 159	. 738
45	. 430	. 788	. 576	. 364	. 152	. 728
47½	. 429	. 786	. 573	. 359	. 146	. 718
48¾	. 428	. 786	. 571	. 357	. 142	. 713
50	1. 428	1. 785	3. 570	5. 354	7. 139	10. 709
52½	. 426	783	. 566	. 349	. 132	. 699
55	. 425	781	. 563	. 344	. 126	. 689
56¼	. 425	. 781	. 561	. 342	. 123	. 684
57½	. 424	. 780	. 560	. 339	. 119	. 679
52 00	1. 423	1. 778	3. 556	5. 334	7. 113	10. 669

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 50°	1¼	2. 880	0. 000
	2½	5. 760	. 001
	3¾	8. 639	. 002
	5	11. 519	. 004
	6¼	14. 399	. 006
	7½	17. 279	. 009
	10	23. 039	. 017
	12½	28. 799	. 026
	15	34. 558	. 037
For latitude 51°	1¼	2. 880	0. 000
	2½	5. 761	. 001
	3¾	8. 641	. 002
	5	11. 521	. 004
	6¼	14. 402	. 006
	7½	17. 282	. 009
	10	23. 043	. 016
	12½	28. 804	. 026
	15	34. 564	. 037
For latitude 52°	1¼	2. 881	0. 000
	2½	5. 762	. 001
	3¾	8. 643	. 002
	5	11. 523	. 004
	6¼	14. 404	. 006
	7½	17. 285	. 009
	10	23. 046	. 016
	12½	28. 809	. 025
	15	34. 570	. 037

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
0 00	3.804	7.609	11.413	15.218	22.827
05	.804	.609	.413	.218	.827
07½	.804	.609	.413	.218	.826
10	.804	.609	.413	.218	.826
15	3.804	7.609	11.413	15.218	22.826
20	.804	.609	.413	.217	.826
22½	.804	.609	.413	.217	.826
25	.804	.609	.413	.217	.826
30	3.804	7.609	11.413	15.217	22.826
35	.804	.608	.413	.217	.825
37½	.804	.608	.413	.217	.825
40	.804	.608	.413	.217	.825
45	3.804	7.608	11.412	15.216	22.825
50	.804	.608	.412	.216	.824
52½	.804	.608	.412	.216	.824
55	.804	.608	.412	.216	.824
1 00	3.804	7.608	11.412	15.215	22.823
05	.804	.608	.411	.215	.822
07½	.804	.607	.411	.215	.822
10	.804	.607	.411	.215	.822
15	3.804	7.607	11.411	15.214	22.821
20	.803	.607	.410	.214	.820
22½	.803	.607	.410	.213	.820
25	.803	.607	.410	.213	.820
30	3.803	7.606	11.409	15.213	22.819
35	.803	.606	.409	.212	.818
37½	.803	.606	.409	.212	.817
40	.803	.606	.408	.211	.817
45	3.803	7.605	11.408	15.211	22.816
50	.802	.605	.407	.210	.815
52½	.802	.605	.407	.210	.814
55	.802	.605	.407	.209	.814
2 00	3.802	7.604	11.407	15.208	22.813
05	.802	.604	.406	.208	.812
07½	.802	.604	.405	.207	.811
10	.802	.603	.405	.207	.810
15	3.802	7.603	11.405	15.206	22.809
20	.801	.603	.404	.205	.808
22½	.801	.602	.404	.205	.807
25	.801	.602	.403	.204	.806
30	3.801	7.602	11.403	15.203	22.805
35	.801	.601	.402	.202	.803
37½	.800	.601	.401	.202	.803
40	.800	.601	.401	.201	.802
45	3.800	7.600	11.400	15.200	22.800
50	.800	.600	.399	.199	.799
52½	.800	.599	.399	.199	.798
55	.799	.599	.398	.198	.797
3 00	3.799	7.598	11,398	15.197	22.795

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 0°	2½	3.779	0.000
	5	7.557	.000
	7½	11.336	.000
	10	15.115	.000
	12½	18.893	.000
	15	22.672	.000
For latitude 1°	2½	3.779	0.000
	5	7.557	.000
	7½	11.336	.000
	10	15.115	.000
	12½	18.893	.001
	15	22.672	.001
For latitude 2°	2½	3.779	0.000
	5	7.557	.000
	7½	11.336	.000
	10	15.115	.001
	12½	18.894	.001
	15	22.672	.002
For latitude 3°	2½	3.779	0.000
	5	7.558	.000
	7½	11.336	.001
	10	15.115	.001
	12½	18.894	.002
	15	22.673	.003

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
3 00	3.799	7.598	11.398	15.197	22.795
05	.799	.598	.397	.196	.794
07½	.799	.598	.396	.195	.793
10	.799	.597	.396	.195	.792
15	3.798	7.597	11.395	15.193	22.790
20	.798	.596	.394	.192	.788
22½	.798	.596	.394	.191	.787
25	.798	.595	.393	.191	.786
30	3.797	7.595	11.392	15.190	22.784
35	.797	.594	.391	.188	.782
37½	.797	.594	.391	.187	.781
40	.797	.593	.390	.187	.780
45	3.796	7.593	11.389	15.185	22.778
50	.796	.592	.388.	.184	.776
52½	.796	.592	.387	.183	.775
55	.796	.591	.387	.182	.774
4 00	3.795	7.590	11.386	15.181	22.771
05	.795	.590	.385	.179	.769
07½	.795	.589	.384	.179	.768
10	.794	.589	.383	.178	.767
15	3.794	7.588	11.382	15.176	22.764
20	.794	.587	.382	.174	.762
22½	.793	.587	.380	.174	.760
25	.793	.586	.380	.173	.759
30	3.793	7.586	11.378	15.171	22.757
35	.792	.585	.377	.169	.754
37½	.792	.584	.376	.168	.753
40	.792	.584	.376	.168	.751
45	3.791	7.583	11.374	15.166	22.749
50	.791	.582	.373	.164	.746
52½	.791	.582	.372	.163	.745
55	.791	.581	.372	.162	.743
5 00	3.790	7.580	11.370	15.160	22.740
05	.790	.579	.369	.158	.737
07½	.789	.579	.368	.157	.736
10	.789	.578	.367	.156	.734
15	3.789	7.577	11.366	15.154	22.731
20	.788	.576	.364	.152	.728
22½	.788	.576	.363	.151	.727
25	.788	.575	.363	.150	.725
30	3.787	7.574	11.361	15.148	22.722
35	.786	.573	.359	.146	.719
37½	.786	.572	.359	.145	.717
40	.786	.572	.358	.144	.716
45	3.785	7.571	11.356	15.142	22.712
50	.785	.570	.355	.139	.709
52½	.785	.570	.354	.138	.707
55	.784	.569	.353	.137	.706
6 00	3.784	7.567	11.351	15.135	22.702

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 3°	2½	3.779	0.000
	5	7.558	.000
	7½	11.336	.001
	10	15.115	.001
	12½	18.894	.002
	15	22.673	.003
For latitude 4°	2½	3.779	0.000
	5	7.558	.000
	7½	11.337	.001
	10	15.115	.002
	12½	18.894	.002
	15	22.673	.003
For latitude 5°	2½	3.779	0.000
	5	7.558	.000
	7½	11.337	.001
	10	15.116	.002
	12½	18.895	.003
	15	22.674	.004
For latitude 6°	2½	3.779	0.000
	5	7.558	.001
	7½	11.337	.001
	10	15.116	.002
	12½	18.896	.004
	15	22.675	.005

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1:48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
6 00	3.784	7.567	11.351	15.135	22.702
05	.783	.566	.349	.133	.699
07½	.783	.566	.349	.131	.697
10	.783	.565	.348	.130	.695
15	3.782	7.564	11.346	15.128	22.692
20	.781	.563	.344	.125	.688
22½	.781	.562	.343	.124	.686
25	.781	.561	.342	.123	.685
30	3.780	7.560	11.340	15.121	22.681
35	.779	.559	.338	.118	.677
37½	.779	.558	.338	.117	.675
40	.779	.558	.337	.115	.673
45	3.778	7.556	11.335	15.113	22.669
50	.778	.555	.333	.110	.665
52½	.777	.554	.332	.109	.664
55	.777	.554	.331	.108	.662
7 00	3.776	7.552	11.329	15.105	22.658
05	.776	.551	.327	.102	.653
07½	.775	.550	.326	.101	.651
10	.775	.550	.325	.100	.649
15	3.774	7.548	11.323	15.097	22.645
20	.774	.547	.321	.094	.641
22½	.773	.546	.319	.093	.639
25	.773	.546	.318	.091	.637
30	3.772	7.544	11.316	15.088	22.633
35	.771	.543	.314	.085	.628
37½	.771	.542	.313	.084	.626
40	.771	.541	.312	.083	.624
45	3.770	7.540	11.310	15.080	22.619
50	.769	.538	.307	.077	.615
52½	.769	.538	.306	.075	.613
55	.768	.537	.305	.074	.610
8 00	3.768	7.535	11.303	15.071	22.606
05	.767	.534	.301	.068	.601
07½	.766	.533	.299	.066	.599
10	.766	.532	.298	.064	.597
15	3.765	7.531	11.296	15.061	22.592
20	.765	.529	.294	.058	.587
22½	.764	.528	.292	.056	.585
25	.764	.527	.291	.055	.582
30	3.763	7.526	11.289	15.052	22.577
35	.762	.524	.286	.048	.573
37½	.762	.523	.285	.047	.570
40	.761	.522	.284	.045	.568
45	3.760	7.521	11.281	15.042	22.563
50	.760	.519	.279	.038	.558
52½	.759	.518	.277	.037	.555
55	.758	.517	.276	.035	.553
9 00	3.758	7.516	11.274	15.032	22.547

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 6°	2½	3.779	0.000
	5	7.558	.001
	7½	11.337	.001
	10	15.116	.002
	12½	18.896	.004
	15	22.675	.005
For latitude 7°	2½	3.779	0.000
	5	7.559	.001
	7½	11.338	.001
	10	15.117	.003
	12½	18.896	.004
	15	22.676	.006
For latitude 8°	2½	3.779	0.000
	5	7.559	.001
	7½	11.338	.002
	10	15.118	.003
	12½	18.897	.005
	15	22.677	.007
For latitude 9°	2½	3.780	0.000
	5	7.559	.001
	7½	11.339	.002
	10	15.118	.003
	12½	18.898	.005
	15	22.678	.008

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1:48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
9 00	3.758	7.516	11.274	15.032	22.547
05	.757	.514	.271	.028	.542
07½	.757	.513	.270	.026	.540
10	.756	.512	.268	.025	.537
15	3.755	7.511	11.266	15.021	22.532
20	.754	.509	.263	.018	.526
22½	.754	.508	.262	.016	.524
25	753	.507	.260	.014	.521
30	3.753	7.505	11.258	15.010	22.516
35	.752	.503	.255	.007	.510
37½	.751	.502	.254	.005	.507
40	.751	.502	.252	.003	.505
45	3.750	7.500	11.249	14.999	22.499
50	.749	.498	.247	.996	.493
52½	.748	.497	.245	.994	.491
55	.748	.496	.244	.992	.488
10 00	3.747	7.494	11.241	14.988	22.482
05	.746	.492	.238	.984	.476
07½	.746	.491	.237	.982	.473
10	.745	.490	.235	.980	.470
15	3.744	7.488	11.232	14.976	22.465
20	.743	.486	.229	.973	.459
22½	.743	.485	.228	.971	.456
25	.742	.484	.226	.969	.453
30	3.741	7.482	11.223	14.965	22, 447
35	.740	.480	.220	.961	.441
37½	.740	.479	.219	.959	.438
40	.739	.478	.217	.956	.435
45	3.738	7.476	11.214	14.952	22.429
50	.737	.474	.211	.948	.422
52½	.737	.473	.210	.946	.419
55	.736	.472	.208	.944	.416
11 00	3.735	7.470	11.205	14.940	22.410
05	.734	.468	.202	.936	.404
07½	.733	.467	.200	.934	.400
10	.733	.466	.199	.931	.397
15	3.732	7.464	11, 195	14.927	22.391
20	.731	.461	.192	.923	.384
22½	.730	.460	.191	921	.381
25	.730	.459	.189	.919	.378
30	3.729	7.457	11, 186	14.914	22.371
35	.727	.455	.182	.910	.365
37½	.727	.454	.181	.908	.361
40	.726	.453	.179	.905	.358
45	3.725	7.450	11.176	14.901	22.351
50	.724	.448	.172	.896	.345
52½	.724	.447	.171	.894	.341
55	.723	.446	.169	.892	.338
12 00	3.722	7.444	11.165	14.887	22.331

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 9°	2½	3.780	0.000
	5	7.559	.001
	7½	11.339	.002
	10	15.118	.003
	12½	18.898	.005
	15	22.678	.008
For latitude 10°	2½	3.780	0.000
	5	7.560	.001
	7½	11.340	.002
	10	15.119	.004
	12½	18.899	.006
	15	22.679	.009
For latitude 11°	2½	3.780	0.000
	5	7.560	.001
	7½	11.340	.002
	10	15.120	.004
	12½	18.901	.006
	15	22.681	.009
For latitude 12°	2½	3.780	0.000
	5	7.561	.001
	7½	11.341	.003
	10	15.121	.005
	12½	18.902	.007
	15	11.682	.010

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel		Abscissas of developed parallel				
		Longitude interval				
		2½′	5′	7½′	10′	15′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
12	00	3.722	7.444	11.165	14.887	22.331
	05	.721	.441	.162	.883	.324
	07½	.720	.440	.160	.880	.321
	10	.720	.439	.159	.878	.317
	15	3.718	7.437	11.155	14.873	22.310
	20	.717	.434	.152	.869	.303
	22½	.717	.433	.150	.866	.300
	25	.716	.432	.148	.864	.296
	30	3.715	7.430	11.145	14.859	22.289
	35	.714	.427	.141	.855	.282
	37½	.713	.426	.139	.852	.278
	40	.712	.425	.137	.850	.275
	45	3.711	7.422	11.134	14.845	22.267
	50	.710	.420	.130	.840	.260
	52½	.709	.419	.128	.838	.256
	55	.709	.418	.126	.835	.253
13	00	3.708	7.415	11.123	14.830	22.245
	05	.706	.413	.119	.825	.238
	07½	.706	.411	.117	.823	.234
	10	.705	.410	.115	.820	.230
	15	3.704	7.408	11.111	14.815	22.223
	20	.703	.405	.108	.810	.215
	22½	.702	.404	.106	.808	.211
	25	.701	.403	.104	.805	.208
	30	3.700	7.400	11.100	14.800	22.200
	35	.699	.397	.096	.795	.192
	37½	.698	.396	.094	.792	.188
	40	.697	.395	.092	.790	.184
	45	8.696	7.392	11.088	14.784	22.177
	50	.695	.390	.084	.779	.169
	52½	.694	.388	.082	.777	.165
	55	.693	.387	.080	.774	.161
14	00	3.692	7.384	11.077	14.769	22.153
	05	.691	.382	.072	.763	.145
	07½	.690	.380	.070	.761	.141
	10	.689	.379	.068	.758	.137
	15	3.688	7.376	11.064	14.752	22.129
	20	.687	.374	.060	.747	.121
	22½	.686	.372	.058	.744	.116
	25	.685	.371	.056	.742	.112
	30	3.684	7.368	11.052	14.736	22.104
	35	.683	.365	.048	.731	.096
	37½	.682	.364	.046	.728	.092
	40	.681	.363	.044	.725	.088
	45	3.680	7.360	11.040	14.719	22.079
	50	.678	.357	.035	.714	.071
	52½	.670	.356	.033	.711	.066
	55	.677	.354	.031	.708	.062
15	00	8.676	7.351	11.027	14.702	22.054

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 12°	2½	3.780	0.000
	5	7.561	.001
	7½	11.341	.003
	10	15.121	.005
	12½	18.902	.007
	15	22.682	.010
For latitude 13°	2½	3.781	0.000
	5	7.561	.001
	7½	11.342	.003
	10	15.123	.005
	12½	18.903	.008
	15	22.684	.011
For latitude 14°	2½	3.781	0.000
	5	7.562	.001
	7½	11.343	.003
	10	15.124	.005
	12½	18.905	.008
	15	22.686	.012
For latitude 15°	2½	3.781	0.000
	5	7.562	.001
	7½	11.344	.003
	10	15.125	.006
	12½	18.907	.009
	15	22.688	.012

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
15 00	3.676	7.351	11.027	14.702	22.054
05	.674	.348	.023	.697	.045
07½	.673	.347	.020	.694	.041
10	.673	.346	.018	.691	.037
15	3.671	7.343	11.014	14.685	22.028
20	.670	.340	.010	.679	.019
22½	.669	.338	.007	.677	.015
25	.668	.337	.005	.674	.010
30	3.667	7.334	11.001	14.668	22.002
35	.665	.331	10.996	.662	21.993
37½	.665	.329	.994	.659	.988
40	.664	.328	.992	.656	.984
45	3.662	7.325	10.987	14.650	21.975
50	.661	.322	.983	.644	.966
52½	.660	.320	.981	.641	.962
55	.659	.319	.978	.638	.957
16 00	3.658	7.316	10.974	14.632	21.948
05	.656	.313	.969	.626	.939
07½	.656	.311	.967	.623	.934
10	.655	.310	.965	.620	.930
15	3.653	7.307	10.960	14.614	21.920
20	.652	.304	.956	.607	.911
22½	.651	.302	.953	.604	.907
25	.650	.301	.951	.601	.902
30	3.649	7.297	10.946	14.595	21.893
35	.647	.294	.942	.589	.883
37½	.646	.293	.939	.586	.878
40	.646	.291	.937	.582	.874
45	3.644	7.288	10.932	14.576	21.864
50	.642	.285	.927	.570	.855
52½	.642	.283	.925	.567	.850
55	.641	.282	.922	.563	.845
17 00	3.639	7.278	10.918	14.557	21.835
05	.638	.275	.913	.551	.826
07½	.637	.274	.910	.547	.821
10	.636	.272	.908	.544	.816
15	3.634	7.269	10.903	14.538	21.806
20	.633	.265	.898	.531	.796
22½	.632	.264	.896	.528	.792
25	.631	.262	.893	.524	.787
30	3.629	7.259	10.888	14.518	21.777
35	.628	.256	.883	.511	.767
37½	.627	.254	.881	.508	.762
40	.626	.252	.878	.505	.757
45	3.624	7.249	10.873	14.498	21.747
50	.623	.246	.868	.491	.737
52½	.622	.244	.866	.488	.732
55	.621	.242	.863	.484	.727
18 00	3.619	7.239	10.858	14.478	21.716

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 15°	2½	3.781	0.000
	5	7.562	.001
	7½	11.344	.003
	10	15.125	.006
	12½	18.907	.009
	15	22.688	.012
For latitude 16°	2½	3.782	0.000
	5	7.563	.001
	7½	11.345	.003
	10	15.126	.006
	12½	18.908	.009
	15	22.690	.013
For latitude 17°	2½	3.782	0.000
	5	7.564	.002
	7½	11.346	.003
	10	15.128	.006
	12½	18.910	.010
	15	22.692	.014
For latitude 18°	2½	3.782	0.000
	5	7.565	.002
	7½	11.347	.004
	10	15.129	.006
	12½	18.912	.010
	15	22.694	.015

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
18 00	3. 619	7. 239	10. 858	14. 478	21. 716
05	. 618	. 235	. 853	. 471	. 706
07½	. 617	. 234	. 850	. 467	. 701
10	. 616	. 232	. 848	. 464	. 696
15	3. 614	7. 228	10. 843	14. 457	21. 686
20	. 613	. 225	. 838	. 450	. 675
22½	. 612	. 223	. 835	. 447	. 670
25	. 611	. 222	. 832	. 443	. 665
30	3. 609	7. 218	10. 827	14. 436	22. 654
35	. 607	. 215	. 822	. 429	. 544
37½	. 606	. 213	. 819	. 426	. 639
40	. 606	. 211	. 817	. 422	. 633
45	3. 604	7. 208	10. 811	14. 415	21. 623
50	. 602	. 204	. 806	. 408	. 612
52½	. 601	. 202	. 803	. 404	. 607
55	. 600	. 200	. 801	. 401	. 601
19 00	3. 598	7. 197	10. 795	14. 394	21. 591
05	. 597	. 193	. 790	. 387	. 580
07½	. 596	. 192	. 787	. 383	. 574
10	. 595	. 190	. 785	. 379	. 569
15	3. 593	7. 186	10. 779	14. 372	21. 558
20	. 591	. 182	. 774	. 365	. 547
22½	. 590	. 181	. 771	. 361	. 542
25	. 589	. 179	. 768	. 358	. 536
30	3. 588	7. 175	10. 763	14. 350	21. 525
35	. 586	. 171	. 757	. 343	. 514
37½	. 585	. 170	. 754	. 339	. 509
40	. 584	. 168	. 752	. 335	. 503
45	3. 582	7. 164	10. 746	14. 328	21. 492
50	. 580	. 160	. 741	. 321	. 481
52½	. 579	. 158	. 738	. 317	. 475
55	. 578	. 157	. 735	. 313	. 470
20 00	3. 576	7. 153	10. 729	14. 306	21. 458
05	. 575	. 149	. 724	. 298	. 447
07½	. 574	. 147	. 721	. 294	. 441
10	. 573	. 145	. 718	. 290	. 436
15	3. 571	7. 141	10. 712	14. 283	21. 424
20	. 569	. 138	. 706	. 275	. 413
22½	. 568	. 136	. 704	. 271	. 407
25	. 567	. 134	. 701	. 268	. 401
30	3. 565	7. 130	10. 695	14. 260	21. 390
35	. 563	. 126	. 689	. 252	. 378
37½	. 562	. 124	. 686	. 248	. 372
40	. 561	. 122	. 683	. 244	. 367
45	3. 559	7. 118	10. 678	14. 237	21. 355
50	. 557	. 114	. 672	. 229	. 343
52½	. 556	. 112	. 669	. 225	. 337
55	. 555	. 110	. 666	. 221	. 331
21 00	3. 553	7. 107	10. 660	14. 213	21. 320

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 18°	2½	3. 782	0. 000
	5	7. 565	. 002
	7½	11. 347	. 004
	10	15. 129	. 006
	12½	18. 912	. 010
	15	22. 694	. 015
For latitude 19°	2½	3. 783	0. 000
	5	7. 566	. 002
	7½	11. 348	. 004
	10	15. 131	. 007
	12½	18. 914	. 011
	15	22. 697	. 015
For latitude 20°	2½	3. 783	0. 000
	5	7. 566	. 002
	7½	11. 350	. 004
	10	15. 133	. 007
	12½	18. 916	. 011
	15	22. 699	. 016
For latitude 21°	2½	3. 784	0. 000
	5	7. 567	. 002
	7½	11. 351	. 004
	10	15. 135	. 007
	12½	18. 919	. 012
	15	22. 702	. 017

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
21 00	3. 553	7. 107	10. 660	14. 213	21. 320
05	. 551	. 103	. 654	. 205	. 308
07½	. 550	. 101	. 651	. 201	. 302
10	. 549	. 099	. 648	. 197	. 296
15	3. 547	7. 095	10. 642	14. 189	21. 284
20	. 545	. 091	. 636	. 181	. 272
22½	. 544	. 089	. 633	. 177	. 266
25	. 543	. 087	. 630	. 173	. 260
30	3. 541	7. 083	10. 624	14. 165	21. 248
35	. 539	. 079	. 618	. 157	. 236
37½	. 538	. 077	. 615	. 153	. 230
40	. 537	. 075	. 612	. 149	. 224
45	3. 535	7. 070	10. 606	14. 141	21. 211
50	. 533	. 066	. 600	. 138	. 199
52½	. 532	. 064	. 596	. 129	. 193
55	. 531	. 062	. 593	. 125	. 187
22 00	3. 529	7. 058	10. 587	14. 116	21. 174
05	. 527	. 054	. 581	. 108	. 162
07½	. 526	. 052	. 578	. 104	. 156
10	. 525	. 050	. 575	. 100	. 150
15	3. 523	7. 046	10. 569	14. 091	21. 137
20	. 521	. 042	. 562	. 083	. 125
22½	. 520	. 039	. 559	. 079	. 118
25	. 519	. 037	. 556	. 075	. 112
30	3. 517	7. 033	10. 550	14. 066	21. 099
35	. 514	. 029	. 543	. 058	. 087
37½	. 513	. 027	. 540	. 054	. 080
40	. 512	. 025	. 537	. 049	. 074
45	3. 510	7. 020	10. 531	14. 041	21. 061
50	. 508	. 016	. 524	. 032	. 049
52½	. 507	. 014	. 521	. 028	. 042
55	. 506	. 012	. 518	. 024	. 036
23 00	3. 504	7. 008	10. 511	14. 015	21. 023
05	. 502	. 003	. 505	. 007	. 010
07½	. 501	. 001	. 502	. 002	. 003
10	. 499	6. 999	. 498	13. 998	20. 997
15	3. 497	6. 995	10. 492	13. 989	20. 984
20	. 495	. 990	. 485	. 981	. 971
22½	. 494	. 988	. 482	. 976	. 964
25	. 493	. 986	. 479	. 972	. 958
30	3. 491	6. 982	10. 472	13. 963	20. 945
35	. 489	. 977	. 466	. 954	. 931
37½	. 487	. 975	. 462	. 950	. 925
40	. 486	. 973	. 459	. 945	. 918
45	3. 484	6. 968	10. 452	13. 937	20. 905
50	. 482	. 964	. 446	. 928	. 892
52½	. 481	. 962	. 442	. 923	. 885
55	. 480	. 959	. 439	. 919	. 878
24 00	3. 477	6. 955	10. 432	13. 910	20. 865

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 21°	2½	3. 784	0. 000
	5	7. 567	. 002
	7½	11. 351	. 004
	10	15. 135	. 007
	12½	18. 919	. 012
	15	22. 702	. 017
For latitude 22°	2½	3. 784	0. 000
	5	7. 568	. 002
	7½	11. 352	. 004
	10	15. 136	. 008
	12½	18. 921	. 012
	15	22. 705	. 017
For latitude 23°	2½	3. 785	0 000
	5	7. 569	. 002
	7½	11. 354	. 004
	10	15. 138	. 008
	12½	18. 923	. 012
	15	22. 708	. 018
For latitude 24°	2½	3. 785	0. 001
	5	7. 570	. 002
	7½	11. 355	. 005
	10	15. 140	. 008
	12½	18. 926	. 013
	15	22. 711	. 019

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
24 00	3.477	6.955	10.432	13.910	20.865
05	.475	.950	.426	.900	.851
07½	.474	.948	.422	.896	.845
10	.473	.946	.419	.892	.838
15	3.471	6.941	10.412	13.883	20.824
20	.468	.937	.405	.874	.811
22½	.467	.935	.402	.869	.804
25	.466	.932	.398	.865	.797
30	3.464	6.928	10.392	13.856	20.783
35	.462	.923	.385	.846	.770
37½	.460	.921	.381	.842	.763
40	.459	.919	.378	.837	.756
45	3.457	6.914	10.371	13.828	20.742
50	.455	.909	.364	.819	.728
52½	.454	.907	.361	.814	.721
55	.452	.905	.357	.810	.714
25 00	3.450	6.900	10.350	13.800	20.700
05	.448	.895	.343	.791	.686
07½	.447	.893	.340	.786	.679
10	.445	.891	.336	.782	.672
15	3.443	6.886	10.329	13.772	20.658
20	.441	.881	.322	.763	.644
22½	.440	.879	.318	.758	.637
25	.438	.877	.315	.753	.630
30	3.436	6.872	10.308	13.744	20.616
35	.434	.867	.301	.734	.602
37½	.432	.865	.297	.730	.594
40	.431	.862	.294	.725	.587
45	3.429	6.858	10.286	13.715	20.573
50	.426	.853	.279	.706	.559
52½	.425	.850	.276	.701	.551
55	.424	.848	.272	.696	.544
26 00	3.422	6.843	10.265	13.686	20.530
05	.419	.838	.258	.677	.515
07½	.418	.836	.254	.672	.508
10	.417	.834	.250	.667	.501
15	3.414	6.829	10.243	13.657	20.486
20	.412	.824	.236	.648	.471
22½	.411	.821	.232	.643	.464
25	.409	.819	.228	.638	.457
30	3.407	6.814	10.221	13.628	20.442
35	.405	.809	.214	.618	.427
37½	.403	.807	.210	.613	.420
40	.402	.804	.206	.608	.412
45	3.400	6.799	10.199	13.598	20.398
50	.397	.794	.191	.588	.383
52½	.396	.792	.188	.584	.375
55	.395	.789	.184	.579	.368
27 00	3.392	6.784	10.176	13.569	20.353

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 24°	2½	3.785	0.001
	5	7.570	.002
	7½	11.355	.005
	10	15.140	.008
	12½	18.926	.013
	15	22.711	.019
For latitude 25°	2½	3.786	0.001
	5	7.571	.002
	7½	11.357	.005
	10	15.142	.008
	12½	18.928	.013
	15	22.714	.019
For latitude 26°	2½	3.786	0.001
	5	7.572	.002
	7½	11.358	.005
	10	15.144	.009
	12½	18.931	.014
	15	22.717	.020
For latitude 27°	2½	3.787	0.001
	5	7.573	.002
	7½	11.360	.005
	10	15.147	.009
	12½	18.934	.014
	15	22.720	.020

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel		Abscissas of developed parallel				
		Longitude interval				
		2½′	5′	7½′	10′	15′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
27	00	3.392	6.784	10.176	13.569	20.353
	05	.390	.779	.169	.559	.338
	07½	.388	.777	.165	.553	.330
	10	.387	.774	.161	.548	.323
	15	3.385	6.769	10.154	13.538	20.308
	20	.382	.764	.146	.528	.292
	22½	.381	.762	.142	.523	.285
	25	.380	.759	.139	.518	.277
	30	3.377	6.754	10.131	13.508	20.262
	35	.374	.749	.123	.498	.247
	37½	.373	.746	.120	.493	.239
	40	.372	.744	.116	.488	.231
	45	3.369	6.739	10.108	13.477	20.216
	50	.367	.734	.100	.467	.201
	52½	.365	.731	.096	.462	.193
	55	.364	.728	.093	.457	.185
28	00	3.362	6.723	10.085	13.446	20.170
	05	.359	.718	.077	.436	.154
	07½	.358	.715	.073	.431	.146
	10	.356	.713	.069	.426	.139
	15	3.354	6.708	10.061	13.415	20.123
	20	.351	.702	.054	.405	.107
	22½	.350	.700	.050	.400	.099
	25	.349	.697	.046	.394	.092
	30	3.346	6.692	10.038	13.384	20.076
	35	.343	.687	.030	.373	.060
	37½	.342	.684	.026	.368	.052
	40	.341	.681	.022	.363	.044
	45	3.338	6.676	10.014	13.352	20.028
	50	.335	.671	.006	.342	.012
	52½	.334	.668	.002	.336	.004
	55	.333	.666	9.998	.331	19.996
29	00	3.330	6.660	9.990	13.320	19.980
	05	.327	.655	.982	.310	.964
	07½	.326	.652	.978	.304	.956
	10	.325	.649	.974	.299	.948
	15	3.322	6.644	9.966	13.288	19.932
	20	.319	.639	.958	.277	.916
	22½	.318	.636	.954	.272	.908
	25	.317	.633	.950	.267	.900
	30	3.314	6.628	9.942	13.256	19.884
	35	.311	.622	.934	.245	.867
	37½	.310	.620	.929	.239	.859
	40	.308	.617	.925	.234	.851
	45	3.306	6.611	9.917	13.223	19.835
	50	.303	.606	.909	.212	.818
	52½	.302	.603	.905	.207	.810
	55	.300	.601	.901	.201	.802
30	00	3.298	6.595	9.893	13.190	19.785

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 27°	2½	3.787	0.001
	5	7.573	.002
	7½	11.360	.005
	10	15.147	.009
	12½	18.934	.014
	15	22.720	.020
For latitude 28°	2½	3.787	0.001
	5	7.574	.002
	7½	11.362	.005
	10	15.149	.009
	12½	18.936	.014
	15	22.723	.021
For latitude 29°	2½	3.788	0.001
	5	7.575	.002
	7½	11.363	.005
	10	15.151	.009
	12½	18.939	.015
	15	22.727	.021
For latitude 30°	2½	3.788	0.001
	5	7.577	.002
	7½	11.365	.005
	10	15.153	.010
	12½	18.942	.015
	15	22.730	.022

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
30 00	3. 298	6. 595	9. 893	13. 190	19. 785
05	. 295	. 589	. 884	. 179	. 769
07½	. 293	. 587	. 880	. 174	. 760
10	. 292	. 584	. 876	. 168	. 752
15	3. 289	6. 578	9. 868	13. 157	19. 735
20	. 286	. 573	. 859	. 146	. 719
22½	. 285	. 570	. 855	. 140	. 710
25	. 284	. 567	. 851	. 135	. 702
30	3. 281	6. 562	9. 843	13. 123	19. 685
35	. 278	. 556	. 834	. 112	. 668
37½	. 277	. 553	. 830	. 107	. 660
40	. 275	. 551	. 826	. 101	. 652
45	3. 272	6. 545	9. 817	13. 090	19. 635
50	. 270	. 539	. 809	. 078	. 618
52½	. 268	. 536	. 805	. 073	. 609
55	. 267	. 534	. 800	. 067	. 601
31 00	3. 264	6. 528	9. 792	13. 056	19. 584
05	. 261	. 522	. 783	. 044	. 567
07½	. 260	. 519	. 779	. 039	. 558
10	. 258	. 517	. 775	. 033	. 550
15	3. 255	6. 511	9. 766	13. 022	19. 532
20	. 253	. 505	. 758	. 010	. 515
22½	. 251	. 502	. 753	. 004	. 507
25	. 250	. 499	. 749	12. 999	. 498
30	3. 247	6. 494	9. 740	12. 987	19. 481
35	. 244	. 488	. 732	. 976	. 464
37½	. 242	. 485	. 727	. 970	. 455
40	. 241	. 482	. 723	. 964	. 446
45	3. 238	6. 476	9. 714	12. 953	19. 429
50	. 235	. 470	. 706	. 941	. 411
52½	. 234	. 468	. 701	. 935	. 403
55	. 232	. 465	. 697	. 929	. 394
32 00	3. 229	6. 459	9. 688	12. 918	19. 376
05	. 226	. 453	. 679	. 906	. 359
07½	. 225	. 450	. 675	. 900	. 350
10	. 224	. 447	. 671	. 894	. 341
15	3. 221	6. 441	9. 662	12. 882	19. 324
20	. 218	. 435	. 653	. 871	. 307
22½	. 216	. 432	. 649	. 865	. 297
25	. 215	. 429	. 644	. 859	. 288
30	3. 212	6. 424	9. 635	12. 847	19. 271
35	. 209	. 418	. 626	. 835	. 253
37½	. 207	. 415	. 622	. 829	. 244
40	. 206	. 412	. 617	. 823	. 235
45	3. 203	6. 406	9. 608	12. 811	19. 217
50	. 200	. 400	. 600	. 799	. 199
52½	. 198	. 397	. 595	. 793	. 190
55	. 197	. 394	. 591	. 787	. 181
33 00	3. 194	6. 388	9. 582	12. 775	19. 163

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 30°	2½	3. 788	0. 001
	5	7. 577	. 002
	7½	11. 365	. 005
	10	15. 153	. 010
	12½	18. 942	. 015
	15	22. 730	. 022
For latitude 31°	2½	3. 789	0. 001
	5	7. 578	. 002
	7½	11. 367	. 005
	10	15. 156	. 010
	12½	18. 945	. 015
	15	22. 734	. 022
For latitude 32°	2½	3. 789	0. 001
	5	7. 579	. 002
	7½	11. 369	. 006
	10	15. 158	. 010
	12½	18. 948	. 016
	15	22. 737	. 022
For latitude 33°	2½	3. 790	0. 001
	5	7. 580	. 003
	7½	11. 370	. 006
	10	15. 161	. 010
	12½	18. 951	. 016
	15	22. 741	. 023

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
33 00	3. 194	6. 388	9. 582	12. 775	19. 163
05	. 191	. 382	. 573	. 763	. 145
07½	. 189	. 379	. 568	. 757	. 136
10	. 188	. 376	. 564	. 751	. 127
15	3. 185	6. 370	9. 554	12. 739	19. 109
20	. 182	. 364	. 545	. 727	. 091
22½	. 180	. 361	. 541	. 721	. 082
25	. 179	. 358	. 536	. 715	. 073
30	3. 176	6. 351	9. 527	12. 703	19. 054
35	. 173	. 345	. 518	. 691	. 036
37½	. 171	. 342	. 513	. 685	. 027
40	. 170	. 339	. 509	. 679	. 018
45	3. 167	6. 333	9. 500	12. 666	18. 999
50	. 164	. 327	. 491	. 654	. 981
52½	. 162	. 324	. 486	. 648	. 972
55	. 160	. 321	. 481	. 642	. 963
34 00	3. 157	6. 315	9. 472	12. 629	18. 944
05	. 154	. 309	. 463	. 617	. 926
07½	. 153	. 305	. 458	. 611	. 916
10	. 151	. 302	. 453	. 605	. 907
15	3. 148	6. 296	9. 444	12. 592	18. 888
20	. 145	. 290	. 435	. 580	. 870
22½	. 143	. 287	. 430	. 574	. 860
25	. 142	. 284	. 426	. 567	. 851
30	3. 139	6. 277	9. 416	12. 555	18. 832
35	. 136	. 271	. 407	. 542	. 814
37½	. 134	. 268	. 402	. 536	. 804
40	. 132	. 265	. 397	. 530	. 795
45	3. 129	6. 259	9. 388	12. 517	18. 776
50	. 126	. 252	. 379	. 505	. 757
52½	. 125	. 249	. 374	. 498	. 748
55	. 123	. 246	. 369	. 492	. 738
35 00	3. 120	6. 240	9. 360	12. 480	18. 719
05	. 117	. 233	. 350	. 467	. 700
07½	. 115	. 230	. 345	. 460	. 691
10	. 114	. 227	. 341	. 454	. 681
15	3. 110	6. 221	9. 331	12. 441	18. 662
20	. 107	. 214	. 321	. 429	. 643
22½	. 106	. 211	. 317	. 422	. 633
25	. 104	. 208	. 312	. 416	. 624
30	3. 101	6. 202	9. 302	12. 403	18. 605
35	. 098	. 195	. 293	. 390	. 585
37½	. 096	. 192	. 288	. 384	. 576
40	. 094	. 189	. 283	. 377	. 566
45	3. 091	6. 182	9. 273	12. 365	18. 547
50	. 088	. 176	. 264	. 352	. 528
52½	. 086	. 173	. 259	. 345	. 518
55	. 085	. 169	. 254	. 339	. 508
36 00	3. 081	6. 163	9. 244	12. 326	18. 489

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 33°	2½	3. 790	0. 001
	5	7. 580	. 003
	7½	11. 370	. 006
	10	15. 161	. 010
	12½	18. 951	. 016
	15	22. 741	. 023
For latitude 34°	2½	3. 791	0. 001
	5	7. 581	. 003
	7½	11. 372	. 006
	10	15. 163	. 010
	12½	18. 954	. 016
	15	22. 745	. 023
For latitude 35°	2½	3. 791	0. 001
	5	7. 583	. 003
	7½	11. 374	. 006
	10	15. 166	. 010
	12½	18. 957	. 016
	15	22. 748	. 023
For latitude 36°	2½	3. 792	0. 001
	5	7. 584	. 003
	7½	11. 376	. 006
	10	15. 168	. 010
	12½	18. 961	. 016
	15	22. 752	. 024

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel		Abscissas of developed parallel				
		Longitude interval				
		2½′	5′	7½′	10′	15′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
36	00	3.081	6.163	9.244	12.326	18.489
	05	.078	.156	.235	.313	.469
	07½	.077	.153	.230	.306	.459
	10	.075	.150	.225	.300	.450
	15	3.072	6.143	9.215	12.287	18.430
	20	.068	.137	.205	.274	.411
	22½	.067	.134	.200	.267	.401
	25	.065	.130	.195	.261	.391
	30	3.062	6.124	9.186	12.248	18.371
	35	.059	.117	.176	.234	.352
	37½	.057	.114	.171	.228	.342
	40	.055	.111	.166	.221	.332
	45	3.052	6.104	9.156	12.208	18.312
	50	.049	.097	.146	.195	.292
	52½	.047	.094	.141	.188	.282
	55	.045	.091	.136	.182	.272
37	00	3.042	6.084	9.126	12.168	18.252
	05	.039	.077	.116	.155	.233
	07½	.037	.074	.111	.148	.223
	10	.035	.071	.106	.142	.213
	15	3.032	6.064	9.096	12.128	18.193
	20	.029	.057	.086	.115	.172
	22½	.027	.054	.081	.108	.162
	25	.025	.051	.076	.102	.152
	30	3.022	6.044	9.066	12.088	18.132
	35	.019	.037	.056	.075	.112
	37½	.017	.034	.051	.068	.102
	40	.015	.031	.046	.061	.092
	45	3.012	6.024	9.036	12.048	18.072
	50	.009	.017	.026	.034	.051
	52½	.007	.014	.021	.027	.041
	55	.005	.010	.015	.021	.031
38	00	3.002	6.004	9.005	12.007	18.011
	05	2.998	5.997	8.995	11.994	17.990
	07½	.997	.993	.990	.987	.980
	10	.995	.990	.985	.980	.970
	15	2.992	5.983	8.975	11.966	17.949
	20	.988	.976	.964	.953	.929
	22½	.986	.973	.959	.946	.919
	25	.985	.969	.954	.939	.908
	30	2.982	5.963	8.944	11.925	17.888
	35	.978	.956	.934	.911	.867
	37½	.976	.952	.928	.905	.857
	40	.974	.949	.923	.898	.846
	45	2.971	5.942	8.913	11.884	17.826
	50	.968	.935	.903	.870	.805
	52½	.966	.932	.897	.863	.795
	55	.964	.928	.892	.856	.784
39	00	2.961	5.921	8.882	11.842	17.763

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 36°	2½	3.792	0.001
	5	7.584	.003
	7½	11.376	.006
	10	15.168	.010
	12½	18.961	.016
	15	22.752	.024
For latitude 37°	2½	3.793	0.001
	5	7.585	.003
	7½	11.378	.006
	10	15.171	.011
	12½	18.964	.017
	15	22.756	.024
For latitude 38°	2½	3.793	0.001
	5	7.587	.003
	7½	11.380	.006
	10	15.173	.011
	12½	18.967	.017
	15	22.760	.024
For latitude 39°	2½	3.794	0.001
	5	7.588	.003
	7½	11.382	.006
	10	15.176	.011
	12½	18.970	.017
	15	22.764	.024

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel		Abscissas of developed parallel				
		Longitude interval				
		2½′	5′	7½′	10′	15′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
39	00	2.961	5.921	8.882	11.842	17.763
	05	.957	.914	.871	.828	.743
	07½	.955	.911	.866	.821	.732
	10	.954	.907	.861	.814	.722
	15	2.950	5.900	8.850	11.800	17.701
	20	.947	.893	.840	.786	.680
	22½	.945	.890	.835	.779	.669
	25	.943	.886	.829	.772	.659
	30	2.940	5.879	8.819	11.758	17.638
	35	.936	.872	.808	.744	.617
	37½	.934	.869	.803	.737	.606
	40	.933	.865	.798	.730	.595
	45	2.929	5.858	8.787	11.716	17.574
	50	.926	.851	.777	.702	.553
	52½	.924	.848	.771	.695	.543
	55	.922	.844	.766	.688	.532
40	00	2.918	5.837	8.755	11.674	17.511
	05	.915	.830	.745	.660	.489
	07½	.913	.826	.739	.652	.479
	10	.911	.823	.734	.645	.468
	15	2.908	5.816	8.723	11.631	17.447
	20	.904	.808	.713	.617	.425
	22½	.902	.805	.707	.610	.414
	25	.901	.801	.702	.603	.404
	30	2.897	5.794	8.691	11.588	17.382
	35	.893	.787	.680	.574	.361
	37½	.892	.783	.675	.567	.350
	40	.890	.780	.670	.559	.339
	45	2.886	5.773	8.659	11.545	17.318
	50	.883	.765	.648	.531	.296
	52½	.881	.762	.643	.523	.285
	55	.879	.758	.637	.516	.274
41	00	2.875	5.751	8.626	11.502	17.253
	05	.872	.744	.615	.487	.231
	07½	.870	.740	.610	.480	.220
	10	.868	.736	.605	.473	.209
	15	2.864	5.729	8.594	11.458	17.187
	20	.861	.722	.583	.444	.165
	22½	.859	.718	.577	.436	.154
	25	.857	.714	.572	.429	.143
	30	2.854	5.707	8.561	11.414	17.122
	35	.850	.700	.550	.400	.100
	37½	.848	.696	.544	.392	.089
	40	.846	.692	.539	.385	.078
	45	2.843	5.685	8.528	11.370	17.056
	50	.839	.678	.517	.356	.033
	52½	.837	.674	.511	.348	.022
	55	.835	.670	.506	.341	.011
42	00	2.832	5.663	8.495	11.326	16.989

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 39°	2½	3.794	0.001
	5	7.588	.003
	7½	11.382	.006
	10	15.176	.011
	12½	18.970	.017
	15	22.764	.024
For latitude 40°	2½	3.795	0.001
	5	7.589	.003
	7½	11.384	.006
	10	15.179	.011
	12½	18.974	.017
	15	22.768	.025
For latitude 41°	2½	3.795	0.001
	5	7.591	.003
	7½	11.386	.006
	10	15.181	.011
	12½	18.977	.017
	15	22.772	.025
For latitude 42°	2½	3.796	0.001
	5	7.592	.003
	17½	11.388	.006
	10	15.184	.011
	12½	18.980	.017
	15	22.776	.025

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel		Abscissas of developed parallel				
		Longitude interval				
		2½′	5′	7½′	10′	15′
°	′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
42	00	2.832	5.663	8.495	11.326	16.989
	05	.828	.656	.483	.311	.967
	07½	.826	.652	.478	.304	.956
	10	.824	.648	.472	.297	.945
	15	2.820	5.641	8.461	11.282	16.923
	20	.817	.633	.450	.267	.900
	22½	.815	.630	.445	.259	.889
	25	.813	.626	.439	.252	.878
	30	2.809	5.619	8.428	11.237	16.856
	35	.806	.611	.417	.222	.833
	37½	.804	.607	.411	.215	.822
	40	.802	.604	.405	.207	.811
	45	2.798	5.596	8.394	11.192	16.788
	50	.794	.589	.383	.177	.766
	52½	.792	.585	.377	.170	.754
	55	.791	.581	.372	.162	.743
43	00	2.787	5.574	8.360	11.147	16.721
	05	.783	.566	.349	.132	.698
	07½	.781	.562	.343	.124	.687
	10	.779	.558	.338	.117	.675
	15	2.775	5.551	8.326	11.102	16.653
	20	.772	.543	.315	.087	.630
	22½	.770	.540	.309	.079	.619
	25	.768	.536	.304	.071	.607
	30	2.764	5.528	8.292	11.056	16.584
	35	.760	.520	.281	.041	.562
	37½	.758	.517	.275	.033	.550
	40	.756	.513	.269	.026	.539
	45	2.753	5.505	8.258	11.011	16.516
	50	.749	.498	.246	10.995	.493
	52½	.747	.494	.241	.988	.481
	55	.745	.490	.235	.980	.470
44	00	2.741	5.482	8.223	10.965	16.447
	05	.737	.475	.212	.949	.424
	07½	.735	.471	.206	.942	.412
	10	.733	.467	.200	.934	.401
	15	2.730	5.459	8.189	10.918	16.378
	20	.726	.452	.177	.903	.355
	22½	.724	.448	.171	.895	.343
	25	.722	.444	.166	.888	.331
	30	2.718	5.436	8.154	10.872	16.308
	35	.714	.428	.142	.857	.285
	37½	.712	.424	.137	.849	.273
	40	.710	.421	.131	.841	.262
	45	2.706	5.413	8.119	10.826	16.238
	50	.703	.405	.108	.810	.215
	52½	.701	.401	.102	.802	.203
	55	.699	.397	.096	.794	.192
45	00	2.695	5.389	8.084	10.779	16.168

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 42°	2½	3.796	0.001
	5	7.592	.003
	7½	11.388	.006
	10	15.184	.011
	12½	18.980	.017
	15	22.776	.025
For latitude 43°	2½	3.797	0.001
	5	7.593	.003
	7½	11.390	.006
	10	15.187	.011
	12½	18.984	.017
	15	22.780	.025
For latitude 44°	2½	3.797	0.001
	5	7.595	.003
	7½	11.392	.006
	10	15.189	.011
	12½	18.987	.017
	15	22.784	.025
For latitude 45°	2½	3.798	0.001
	5	7.596	.003
	7½	11.394	.006
	10	15.192	.011
	12½	18.990	.017
	15	22.788	.025

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
45 00	2.695	5.389	8.084	10.779	16.168
05	.691	.382	.072	.763	.145
07½	.689	.378	.066	.755	.133
10	.687	.374	.061	.747	.121
15	2.683	5.366	8.049	10.732	16.098
20	.679	.358	.037	.716	.074
22½	.677	.354	.031	.708	.062
25	.675	.350	.025	.700	.051
30	2.671	5.342	8.014	10.685	16.027
35	.667	.334	.002	.669	.003
37½	.665	.330	7.996	.661	15.991
40	.663	.327	.990	.653	.980
45	2.659	5.319	7.978	10.637	15.956
50	.655	.311	.966	.621	.932
52½	.653	.307	.960	.613	.920
55	.651	.303	.954	.606	.908
46 00	2.647	5.295	7.942	10.590	15.884
05	.643	.287	.930	.574	.861
07½	.641	.283	.924	.566	.849
10	.639	.279	.918	.558	.837
15	2.635	5.271	7.906	10.542	15.813
20	.631	.263	.894	.526	.789
22½	.629	.259	.888	.518	.777
25	.627	.255	.882	.510	.765
30	2.623	5.247	7.870	10.494	15.741
35	.619	.239	.858	.478	.717
37½	.617	.235	.852	.470	.705
40	.615	.231	.846	.462	.693
45	2.611	5.223	7.834	10.446	15.669
50	.607	.215	.822	.430	.644
52½	.605	.211	.816	.422	.632
55	.603	.207	.810	.413	.620
47 00	2.599	5.199	7.798	10.397	15.596
05	.595	.191	.786	.381	.572
07½	.593	.187	.780	.373	.560
10	.591	.182	.774	.365	.547
15	2.587	5.174	7.762	10.349	15.523
20	.583	.166	.749	.332	.499
22½	.581	.162	.743	.324	.486
25	.579	.158	.737	.316	.474
30	2.575	5.150	7.725	10.300	15.450
35	.571	.142	.713	.284	.425
37½	.569	.138	.707	.275	.413
40	.567	.134	.700	.267	.401
45	2.563	5.125	7.688	10.251	15.376
50	.559	.117	.676	.235	.352
52½	.557	.113	.670	.226	.339
55	.555	.109	.664	.218	.327
48 00	2.550	5.101	7.651	10.202	15.303

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 45°	2½	3.798	0.001
	5	7.596	.003
	7½	11.394	.006
	10	15.192	.011
	12½	18.990	.017
	15	22.788	.025
For latitude 46°	2½	3.799	0.001
	5	7.597	.003
	7½	11.396	.006
	10	15.195	.011
	12½	18.994	.017
	15	22.792	.025
For latitude 47°	2½	3.799	0.001
	5	7.599	.003
	7½	11.398	.006
	10	15.197	.011
	12½	18.997	.017
	15	22.796	.025
For latitude 48°	2½	3.800	0.001
	5	7.600	.003
	7½	11.400	.006
	10	15.200	.011
	12½	19.000	.017
	15	22.800	.025

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

Table IV.—*Coordinates for the projection of maps, scale 1 : 48,000*—Continued

Latitude of parallel	Abscissas of developed parallel				
	Longitude interval				
	2½′	5′	7½′	10′	15′
° ′	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
48 00	2.550	5.101	7.651	10.202	15.303
05	.546	.093	.639	.185	.278
07½	.544	.088	.633	.177	.266
10	.542	.084	.627	.169	.253
15	2.538	5.076	7.614	10.152	15.228
20	.534	.068	.602	.136	.204
22½	.532	.064	.596	.128	.191
25	.530	.060	.589	.119	.179
30	2.526	5.051	7.577	10.103	15.154
35	.522	.043	.565	.086	.129
37½	.519	.039	.558	.078	.117
40	.517	.035	.552	.070	.104
45	2.513	5.026	7.540	10.053	15.079
50	.509	.018	.527	.036	.055
52½	.507	.014	.521	.028	.042
55	.505	.010	.515	.020	.030
49 00	2.501	5.001	7.502	10.003	15.005
05	.497	4.993	.490	9.986	14.979
07½	.494	.989	.483	.978	.967
10	.492	.985	.477	.970	.954
15	2.488	4.976	7.465	9.953	14.929
20	.484	.968	.452	.936	.904
22½	.482	.964	.446	.928	.892
25	.480	.960	.439	.919	.879
30	2.476	4.951	7.427	9.902	14.854
35	.471	.943	.414	.886	.829
37½	.469	.939	.408	.877	.816
40	.467	.934	.402	.869	.803
45	2.463	4.926	7.389	9.852	14.778
50	.459	.918	.376	.835	.753
52½	.457	.913	.370	.827	.740
55	.455	.909	.364	.818	.727
50 00	2.450	4.901	7.351	9.801	14.702
05	.446	.892	.338	.784	.676
07½	.444	.888	.332	.776	.664
10	.442	.884	.326	.767	.651
15	2.438	4.875	7.313	9.750	14.625
20	.433	.867	.300	.733	.600
22½	.431	.862	.294	.725	.587
25	.429	.858	.287	.716	.574
30	2.425	4.850	7.274	9.699	14.549
35	.421	.841	.262	.682	.523
37½	.418	.837	.255	.674	.510
40	.416	.833	.249	.665	.498
45	2.412	4.824	7.236	9.648	14.472
50	.408	.815	.223	.631	.446
52½	.406	.811	.217	.622	.433
55	.403	.807	.210	.614	.420
51 00	2.399	4.798	7.197	9.596	14.395

Ordinates of developed parallel and meridional distances			
Latitude and longitude intervals		Meridional distance	Ordinate of developed parallel
	′	*Inches*	*Inch*
For latitude 48°	2½	3.800	0.001
	5	7.600	.003
	7½	11.400	.006
	10	15.200	.011
	12½	19.000	.017
	15	22.800	.025
For latitude 49°	2½	3.801	0.001
	5	7.601	.003
	7½	11.402	.006
	10	15.203	.011
	12½	19.004	.017
	15	22.804	.025
For latitude 50°	2½	3.801	0.001
	5	7.603	.003
	7½	11.404	.006
	10	15.205	.011
	12½	19.007	.017
	15	22.808	.025
For latitude 51°	2½	3.802	0.001
	5	7.604	.003
	7½	11.406	.006
	10	15.208	.011
	12½	19.011	.017
	15	22.812	.024

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE V.—*Coordinates of intersections of meridians and parallels and lengths of meridians for each degree of latitude, in meters*

For modified polyconic projection of map of the world, natural scale

Latitude (°)	Length of central meridian	Meridian 1° from central meridian			Meridian 2° from central meridian			Meridian 3° from central meridian		
		Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)
0– 1	110,498.2	110,515.2	111,321.3	0.0	110,565.9	222,642.6	0.0	110,650.5	333,963.9	0.0
1– 2	110,498.9	110,515.8	111,253.9	16.9	110,566.6	222,507.9	67.6	110,651.2	333,761.7	152.1
2– 3	110,500.3	110,517.2	111,186.6	33.8	110,568.0	222,373.1	135.2	110,652.6	333,559.5	304.2
3– 4	110,502.3	110,519.3	111,119.3	50.7	110,570.0	222,238.4	202.8	110,654.6	333,357.3	456.3
(0– 4)	441,999.7	442,067.5			442,270.5			442,608.9		
4– 5	110,505.7	110,522.5	111,051.9	67.6	110,572.8	222,103.7	270.4	110,656.5	333,155.1	608.4
5– 6	110,509.1	110,525.9	110,850.2	84.2	110,576.2	221,700.1	336.7	110,660.0	332,549.5	757.6
6– 7	110,513.2	110,530.0	110,648.5	100.7	110,580.2	221,296.6	403.0	110,664.0	331,943.9	906.7
7– 8	110,518.0	110,534.7	110,446.8	117.3	110,585.0	220,893.0	469.3	110,668.8	331,338.2	1,055.9
(4– 8)	442,046.0	442,113.1			442,314.2			442,649.3		
8– 9	110,524.4	110,540.9	110,245.1	133.9	110,590.4	220,489.5	535.6	110,672.9	330,732.6	1,205.0
9–10	110,530.4	110,546.9	109,909.9	149.8	110,596.4	219,819.0	599.3	110,678.9	329,726.4	1,348.4
10–11	110,537.2	110,553.7	109,574.8	165.7	110,603.2	219,148.5	663.0	110,685.7	328,720.1	1,491.7
11–12	110,544.6	110,561.1	109,239.6	181.7	110,610.6	218,477.9	726.7	110,693.1	327,713.8	1,635.0
(8–12)	442,136.6	442,202.6			442,400.6			442,730.6		
12–13	110,554.8	110,570.7	108,904.4	197.6	110,618.6	217,807.3	790.4	110,698.3	326,707.4	1,778.3
13–14	110,563.4	110,579.3	108,437.4	212.6	110,627.2	216,873.0	850.2	110,707.0	325,305.3	1,913.0
14–15	110,572.6	110,588.6	107,970.3	227.5	110,636.4	215,968.7	910.1	110,716.2	323,903.1	2,047.7
15–16	110,582.4	110,598.4	107,503.2	242.5	110,646.2	215,034.2	970.0	110,726.0	322,500.8	2,182.4
(12–16)	442,273.2	442,337.0			442,528.4			442,847.5		
16–17	110,595.4	110,610.7	107,036.1	257.5	110,656.7	214,069.7	1,029.8	110,733.3	321,098.3	2,317.1
17–18	110,606.4	110,621.7	106,439.3	271.2	110,667.7	212,875.9	1,084.7	110,744.3	319,306.8	2,440.6
18–19	110,617.9	110,633.3	105,842.5	284.9	110,679.2	211,681.9	1,139.6	110,755.9	317,515.2	2,564.1
19–20	110,630.0	110,645.4	105,245.7	298.6	110,691.4	210,487.9	1,194.5	110,768.0	315,723.3	2,687.5
(16–20)	442,449.7	442,511.1			442,695.0			443,001.5		

20–21	110, 654. 7	110, 660. 3	104, 648. 7	312. 3	110, 704. 0	209, 293. 7	1, 249. 4	110, 776. 9	313, 931. 2	2, 811. 0
21–22	110, 658. 8	110, 673. 4	103, 925. 0	324. 5	110, 717. 2	207, 845. 9	1, 298. 2	110, 790. 1	311, 758. 7	2, 920. 9
22–23	110, 672. 5	110, 687. 1	103, 201. 2	336. 8	110, 730. 8	206, 398. 0	1, 347. 0	110, 803. 8	309, 585. 9	3, 030. 7
23–24	110, 686. 7	110, 701. 3	102, 477. 3	349. 0	110, 745. 0	204, 949. 9	1, 395. 8	110, 817. 9	307, 412. 8	3, 140. 6
(20–24)	442, 663. 7	442, 722. 1			442, 897. 0			443, 188. 7		
24–25	110, 704. 9	110, 718. 6	101, 753. 3	361. 2	110, 759. 7	203, 501. 6	1, 444. 7	110, 828. 1	305, 239. 5	3, 250. 4
25–26	110, 720. 0	110, 733. 7	100, 906. 0	371. 6	110, 774. 8	201, 806. 5	1, 486. 5	110, 843. 2	302, 696. 1	3, 344. 5
26–27	110, 735. 5	110, 749. 2	100, 058. 6	382. 1	110, 790. 3	200, 111. 3	1, 528. 3	110, 858. 8	300, 152. 3	3, 438. 5
27–28	110, 751. 4	110, 765. 1	99, 211. 0	392. 5	110, 806. 2	198, 415. 8	1, 570. 1	110, 874. 7	297, 608. 2	3, 532. 6
(24–28)	442, 911. 8	442, 966. 6			443, 131. 0			443, 404. 8		
28–29	110, 771. 7	110, 784. 4	98, 363. 4	403. 0	110, 822. 6	196, 720. 1	1, 611. 9	110, 886. 2	295, 063. 7	3, 626. 7
29–30	110, 788. 4	110, 801. 1	97, 396. 4	411. 5	110, 839. 3	194, 785. 8	1, 645. 9	110, 902. 9	292, 161. 2	3, 703. 2
30–31	110, 805. 5	110, 818. 2	96, 429. 2	420. 0	110, 856. 4	192, 851. 2	1, 679. 9	110, 920. 0	289, 258. 4	3, 779. 7
31–32	110, 822. 9	110, 835. 6	95, 462. 0	428. 5	110, 873. 8	190, 916. 2	1, 713. 9	110, 937. 4	286, 355. 1	3, 856. 1
(28–32)	443, 188. 5	443, 239. 3			443, 392. 1			443, 646. 5		
32–33	110, 844. 9	110, 856. 6	94, 494. 5	437. 0	110, 891. 5	188, 981. 0	1, 747. 9	110, 949. 8	283, 451. 3	3, 932. 6
33–34	110, 862. 9	110, 874. 6	93, 412. 4	443. 4	110, 909. 6	186, 816. 4	1, 773. 4	110, 967. 9	280, 203. 5	3, 990. 0
34–35	110, 881. 2	110, 892. 9	92, 330. 1	449. 7	110, 927. 9	184, 651. 5	1, 798. 9	110, 986. 2	276, 955. 3	4, 047. 4
35–36	110, 899. 8	110, 911. 5	91, 247. 7	456. 1	110, 946. 4	182, 486. 2	1, 824. 4	111, 004. 8	273, 706. 4	4, 104. 8
(32–36)	443, 488. 8	443, 535. 6			443, 675. 4			443, 908. 7		
36–37	110, 923. 1	110, 933. 6	90, 165. 0	462. 5	110, 965. 2	180, 320. 5	1, 849. 9	111, 017. 9	270, 457. 0	4, 162. 2
37–38	110, 942. 1	110, 952. 6	88, 972. 8	466. 6	110, 984. 2	177, 935. 8	1, 866. 4	111, 036. 9	266, 879. 3	4, 199. 3
38–39	110, 961. 3	110, 971. 8	87, 780. 4	470. 8	111, 003. 4	175, 550. 8	1, 883. 0	111, 056. 1	263, 300. 9	4, 236. 5
39–40	110, 980. 6	110, 991. 1	86, 587. 9	474. 9	111, 022. 8	173, 165. 3	1, 899. 5	111, 075. 4	259, 721. 9	4, 273. 6
(36–40)	443, 807. 1	443, 849. 1			443, 975. 6			444, 186. 3		
40–41	111, 004. 7	111, 014. 1	85, 395. 1	479. 0	111, 042. 2	170, 779. 4	1, 916. 0	111, 089. 1	256, 142. 2	4, 310. 8
41–42	111, 024. 3	111, 033. 7	84, 098. 5	480. 8	111, 061. 8	168, 186. 0	1, 923. 2	111, 108. 7	252, 251. 4	4, 327. 0
42–43	111, 044. 0	111, 053. 4	82, 801. 7	482. 6	111, 081. 5	165, 592. 0	1, 930. 4	111, 128. 4	248, 359. 9	4, 343. 2
43–44	111, 063. 8	111, 073. 1	81, 504. 6	484. 4	111, 101. 3	162, 997. 7	1, 937. 6	111, 148. 2	244, 467. 7	4, 359. 4
(40–44)	444, 136. 8	444, 174. 3			444, 286. 8			444, 474. 4		
44–45	111, 088. 3	111, 096. 5	80, 207. 3	486. 2	111, 121. 1	160, 402. 8	1, 944. 8	111, 162. 0	240, 574. 8	4, 375. 6
45–46	111, 108. 1	111, 116. 3	78, 812. 5	485. 7	111, 140. 9	157, 612. 9	1, 942. 6	111, 181. 8	236, 389. 4	4, 370. 5
46–47	111, 127. 9	111, 136. 1	77, 417. 3	485. 1	111, 160. 7	154, 822. 5	1, 940. 3	111, 201. 6	232, 203. 3	4, 365. 4
47–48	111, 147. 7	111, 155. 9	76, 022. 0	484. 5	111, 180. 4	152, 031. 6	1, 938. 1	111, 221. 4	228, 016. 5	4, 360. 3
(44–48)	444, 472. 0	444, 504. 8			444, 603. 1			444, 766. 8		

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

Table V.—*Coordinates of intersections of meridians and parallels and lengths of meridians for each degree of latitude, in meters*—Con.

Latitude (°)	Length of central meridian	Meridian 1° from central meridian			Meridian 2° from central meridian			Meridian 3° from central meridian		
		Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)
48–49	111, 172. 1	111, 179. 1	74, 626. 4	484. 0	111, 200. 2	149, 240. 2	1, 935. 8	111, 235. 3	223, 828. 9	4, 355. 2
49–50	111, 191. 7	111, 198. 8	73, 139. 9	481. 1	111, 219. 8	146, 267. 1	1, 924. 1	111, 254. 9	219, 369. 1	4, 329. 0
50–51	111, 211. 3	111, 218. 3	71, 653. 2	478. 1	111, 239. 4	143, 293. 6	1, 912. 4	111, 274. 4	214, 908. 4	4, 302. 7
51–52	111, 230. 7	111, 237. 7	70, 166. 2	475. 2	111, 258. 8	140, 319. 5	1, 900. 8	111, 293. 9	210, 447. 0	4, 276. 4
(48–52)	444, 805. 8	444, 833. 9	----------	----------	444, 918. 2	----------	----------	445, 058. 5	----------	----------
52–53	111, 254. 5	111, 260. 4	68, 678. 9	472. 3	111, 278. 0	137, 344. 9	1, 889. 1	111, 307. 4	205, 984. 8	4, 250. 1
53–54	111, 273. 6	111, 279. 5	67, 108. 0	467. 1	111, 297. 1	134, 203. 0	1, 868. 2	111, 326. 5	201, 272. 0	4, 203. 1
54–55	111, 292. 5	111, 298. 4	65, 536. 8	461. 9	111, 316. 0	131, 060. 6	1, 847. 3	111, 345. 4	196, 558. 3	4, 156. 1
55–56	111, 311. 2	111, 317. 0	63, 965. 3	456. 6	111, 334. 7	127, 917. 6	1, 826. 4	111, 364. 0	191, 843. 8	4, 109. 1
(52–56)	445, 131. 8	445, 155. 3	----------	----------	445, 225. 8	----------	----------	445, 343. 3	----------	----------
56–57	111, 334. 0	111, 338. 8	62, 393. 6	451. 4	111, 353. 1	124, 774. 1	1, 805. 5	111, 377. 0	187, 128. 5	4, 062. 1
57–58	111, 352. 2	111, 356. 9	60, 745. 8	444. 0	111, 371. 3	121, 478. 6	1, 775. 9	111, 395. 1	182, 185. 4	3, 995. 3
58–59	111, 370. 0	111, 374. 8	59, 097. 7	436. 6	111, 389. 1	118, 182. 5	1, 746. 2	111, 413. 0	177, 241. 4	3, 928. 5
59–60	111, 387. 6	111, 392. 4	57, 449. 3	429. 1	111, 406. 7	114, 885. 8	1, 716. 5	111, 430. 6	172, 296. 7	3, 861. 7
(56–60)	445, 443. 8	445, 462. 9	----------	----------	445, 520. 2	----------	----------	445, 615. 7	----------	----------
60	----------	----------	55, 800. 7	421. 7	----------	111, 588. 7	1, 686. 8	----------	167, 351. 2	3, 794. 9

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE VI.—*Coordinates of intersections of meridians and parallels and lengths of meridians for each degree of latitude, in inches*

For modified polyconic projection of map of the world, scale 1 : 1,000,000

Latitude (°)	Length of central meridian	Meridian 1° from central meridian			Meridian 2° from central meridian			Meridian 3° from central meridian		
		Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)
0–1	4.350	4.351	4.383	0.000	4.353	8.765	0.000	4.356	13.148	0.000
1–2	4.350	4.351	4.380	.001	4.353	8.760	.003	4.356	13.140	.006
2–3	4.350	4.351	4.377	.001	4.353	8.755	.005	4.356	13.132	.012
3–4	4.350	4.351	4.375	.002	4.353	8.750	.008	4.356	13.124	.018
(0–4)	17.400	17.404	--------	--------	17.412	--------	--------	17.424	--------	--------
4–5	4.351	4.351	4.372	.003	4.353	8.744	.011	4.357	13.116	.024
5–6	4.351	4.351	4.364	.003	4.353	8.728	.013	4.357	13.092	.030
6–7	4.351	4.352	4.356	.004	4.354	8.712	.016	4.357	13.069	.036
7–8	4.351	4.352	4.348	.005	4.354	8.697	.018	4.357	13.045	.042
(4–8)	17.404	17.406	--------	--------	17.414	--------	--------	17.428	--------	--------
8–9	4.351	4.352	4.340	.005	4.354	8.681	.021	4.357	13.021	.047
9–10	4.352	4.352	4.327	.006	4.354	8.654	.024	4.357	12.981	.053
10–11	4.352	4.353	4.314	.007	4.354	8.628	.026	4.358	12.942	.059
11–12	4.352	4.353	4.301	.007	4.355	8.601	.029	4.358	12.902	.064
(8–12)	17.407	17.410	--------	--------	17.417	--------	--------	17.430	--------	--------
12–13	4.353	4.353	4.288	.008	4.355	8.575	.031	4.358	12.862	.070
13–14	4.353	4.354	4.269	.008	4.355	8.538	.033	4.359	12.807	.075
14–15	4.353	4.354	4.251	.009	4.356	8.503	.036	4.359	12.752	.081
15–16	4.354	4.354	4.232	.010	4.356	8.466	.038	4.359	12.697	.086
(12–16)	17.413	17.415	--------	--------	17.422	--------	--------	17.435	--------	--------
16–17	4.354	4.355	4.214	.010	4.357	8.428	.041	4.360	12.642	.091
17–18	4.355	4.355	4.191	.011	4.357	8.381	.043	4.360	12.571	.096
18–19	4.355	4.356	4.167	.011	4.357	8.334	.045	4.360	12.501	.101
19–20	4.356	4.356	4.144	.012	4.358	8.287	.047	4.361	12.430	.106
(16–20)	17.420	17.422	--------	--------	17.429	--------	--------	17.441	--------	--------
20–21	4.356	4.357	4.120	.012	4.358	8.240	.049	4.361	12.359	.111
21–22	4.357	4.357	4.092	.013	4.359	8.183	.051	4.362	12.274	.115
22–23	4.357	4.358	4.063	.013	4.359	8.126	.053	4.362	12.188	.119
23–24	4.358	4.358	4.035	.014	4.360	8.069	.055	4.363	12.103	.124
(20–24)	17.428	17.430	--------	--------	17.436	--------	--------	17.448	--------	--------
24–25	4.358	4.359	4.006	.014	4.361	8.012	.057	4.363	12.017	.128
25–26	4.359	4.360	3.973	.015	4.361	7.945	.059	4.364	11.917	.132
26–27	4.360	4.360	3.939	.015	4.362	7.878	.060	4.365	11.817	.135
27–28	4.360	4.361	3.906	.015	4.362	7.812	.062	4.365	11.717	.139
(24–28)	17.437	17.440	--------	--------	17.446	--------	--------	17.457	--------	--------
28–29	4.361	4.362	3.873	.016	4.363	7.745	.063	4.366	11.617	.143
29–30	4.362	4.362	3.834	.016	4.364	7.669	.065	4.366	11.502	.146
30–31	4.362	4.363	3.796	.017	4.364	7.593	.066	4.367	11.388	.149
31–32	4.363	4.364	3.758	.017	4.365	7.516	.067	4.368	11.274	.152
(28–32)	17.448	17.451	--------	--------	17.456	--------	--------	17.467	--------	--------
32–33	4.364	4.364	3.720	.017	4.366	7.440	.069	4.368	11.159	.155
33–34	4.365	4.365	3.678	.017	4.367	7.355	.070	4.369	11.032	.157
34–35	4.365	4.366	3.635	.018	4.367	7.270	.071	4.370	10.904	.159
35–36	4.366	4.367	3.592	.018	4.368	7.184	.072	4.370	10.776	.162
(32–36	17.460	17.462	--------	--------	17.468	--------	--------	17.477	--------	--------
36–37	4.367	4.367	3.550	.018	4.369	7.099	.073	4.371	10.648	.164
37–38	4.368	4.368	3.503	.018	4.369	7.005	.073	4.372	10.507	.165
38–39	4.369	4.369	3.456	.019	4.370	6.911	.074	4.372	10.366	.167
39–40	4.369	4.370	3.409	.019	4.371	6.818	.075	4.373	10.225	.168
(36–40)	17.473	17.474	--------	--------	17.479	--------	--------	17.488	--------	--------

TABLES FOR CONSTRUCTION OF POLYCONIC PROJECTIONS—Con.

TABLE VI.—*Coordinates of intersections of meridians and parallels and lengths of meridians for each degree of latitude, in inches*—Continued

Latitude (°)	Length of central meridian	Meridian 1° from central meridian			Meridian 2° from central meridian			Meridian 3° from central meridian		
		Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)	Length of meridian	X (for lower latitude)	Y (for lower latitude)
40–41	4.370	4.371	3.362	0.019	4.372	6.724	0.075	4.374	10.084	0.170
41–42	4.371	4.371	3.311	.019	4.373	6.621	.076	4.374	9.931	.170
42–43	4.372	4.372	3.260	.019	4.373	6.519	.076	4.375	9.778	.171
43–44	4.373	4.373	3.209	.019	4.374	6.417	.076	4.376	9.625	.172
(40–44)	17.486	17.487	--------	--------	17.492	--------	--------	17.499	--------	--------
44–45	4.374	4.374	3.158	.019	4.375	6.315	.077	4.376	9.471	.172
45–46	4.374	4.375	3.103	.019	4.376	6.205	.076	4.377	9.307	.172
46–47	4.375	4.375	3.048	.019	4.376	6.095	.076	4.378	9.142	.172
47–48	4.376	4.376	2.993	.019	4.377	5.985	.076	4.379	8.977	.172
(44–48)	17.499	17.500	--------	--------	17.504	--------	--------	17.510	--------	--------
48–49	4.377	4.377	2.938	.019	4.378	5.876	.076	4.379	8.812	.171
49–50	4.378	4.378	2.880	.019	4.379	5.759	.076	4.380	8.637	.170
50–51	4.378	4.379	2.821	.019	4.379	5.641	.075	4.381	8.461	.169
51–52	4.379	4.379	2.762	.019	4.380	5.524	.075	4.382	8.285	.168
(48–52)	17.512	17.513	--------	--------	17.516	--------	--------	17.522	--------	--------
52–53	4.380	4.380	2.704	.019	4.381	5.407	.074	4.382	8.110	.167
53–54	4.381	4.381	2.642	.018	4.382	5.284	.074	4.383	7.924	.165
54–55	4.382	4.382	2.580	.018	4.383	5.160	.073	4.384	7.738	.164
55–56	4.382	4.383	2.518	.018	4.383	5.036	.072	4.384	7.553	.162
(52–56)	17.525	17.526	--------	--------	17.529	--------	--------	17.533	--------	--------
56–57	4.383	4.383	2.456	.018	4.384	4.912	.071	4.385	7.367	.160
57–58	4.384	4.384	2.392	.017	4.385	4.783	.070	4.386	7.173	.157
58–59	4.385	4.385	2.327	.017	4.385	4.653	.069	4.386	6.978	.155
59–60	4.385	4.386	2.262	.017	4.386	4.523	.068	4.387	6.783	.152
(56–60)	17.537	17.538	--------	--------	17.540	--------	--------	17.544	--------	--------
60	----------	----------	2.197	.017	----------	4.393	.066	----------	6.589	.149

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[A. G. 062.11 (9-22-42).]

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G. C. MARSHALL,
Chief of Staff.

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Major General,
The Adjutant General.

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(For explanation of symbols see FM 21-6.)

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